EXHIBIT E

QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES AND REQUIREMENTS

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1.0 OVERVIEW

Quality Assurance (QA) and Quality Control (QC) are integral parts of the U.S. Environmental Protection Agency's (USEPA) Contract Laboratory Program (CLP). The QA process consists of management review and oversight at the planning, implementation, and completion stages of the environmental data collection activity, and ensures that data provided are of the quality required. The QC process includes those activities required during data collection to produce the data quality desired and to document the quality of the collected data.

1.1 Quality Assurance/Quality Control (QA/QC) Activities

During the planning of an environmental data collection program, QA activities focus on defining data quality criteria and designing a QC system to measure the quality of data being generated. During the implementation of the data collection effort, QA activities ensure that the QC system is functioning effectively, and that the deficiencies uncovered by the QC system are corrected. After environmental data are collected, QA activities focus on assessing the quality of data obtained to determine its suitability to support enforcement or remedial decisions.

1.1.1

This exhibit describes the overall QA/QC operations and the processes by which the CLP meets the QA/QC objectives defined above. The contract requires a variety of QA/QC activities. These contract requirements are the minimum QC operations necessary to satisfy the analytical requirements associated with the determination of the different compounds. These QC operations are designed to facilitate laboratory comparison by providing USEPA with comparable data from all Contractors. These requirements do not release the analytical Contractor from maintaining their own QC checks on method and instrument performance.

1.2 Incentives/Sanctions

The Contractor may anticipate incentives by <u>consistently</u> providing the following: (1) high quality, technically sound data, as stipulated by the contract; (2) on-time or early delivery of the Sample Delivery Group (SDG) Cover Sheet; (3) above average Quarterly Blind (QB) Performance Evaluation (PE) sample scores; (4) electronic deliverables that pass the initial Contract Compliance Screening (CCS) acceptance criteria; and (5) SDGs delivered on-time. Samples are distributed routinely to Contractors based on the quality of work performed, as measured by the Performance Scheduling Algorithm (PSA) (as stated in the contract). A Contractor that consistently meets the contract performance requirements as highlighted above, will earn a higher PSA score, thereby increasing the likelihood of receiving samples for analyses. If the Contractor fails to meet the requirements set forth in this Statement of Work (SOW) or elsewhere in the contract, USEPA may take, but is not limited to, the following actions (as stated in the contract): reduction in the number of samples sent under the contract; suspension of sample shipments; data package audit(s); electronic data audit(s); on-site laboratory evaluation(s); and/or remedial PE sample(s).

2.0 INTRODUCTION

Appropriate use of data generated under the large range of analytical conditions encountered in environmental analyses requires reliance on the Quality Control (QC) procedures and criteria incorporated into the analytical methods. The methods in the contract have been validated on samples typical of those received by the laboratories in the Contract Laboratory Program (CLP). However, the validation of these methods does not guarantee that they perform equally well for all sample matrices encountered. Inaccuracies can also result from causes other than unanticipated matrix effects, such as sampling artifacts, equipment malfunctions, contamination, and operator error. Therefore, the QC component of each method is indispensable.

The data acquired from QC procedures are used to estimate and evaluate the information content of analytical results and to determine the necessity for, or the effect of, corrective action procedures. The parameters used to estimate information content include precision, accuracy, detection limit, and other quantitative and qualitative indicators. In addition, QC procedures give an overview of the activities required in an integrated program to generate data of known and documented quality required to meet defined objectives.

2.1 Quality Assurance/Quality Control (QA/QC) Program Components

2.1.1 The necessary components of a complete QA/QC program include internal QC criteria that demonstrate acceptable levels of performance, as determined by QA review. External review of data and procedures is accomplished by the monitoring activities of the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI) Analytical Services Branch (ASB), Regional data users, the Sample Management Office (SMO), and the Quality Assurance Technical Support (QATS) Laboratory. Each external review accomplishes a different purpose. These reviews are described in specific sections of this exhibit. Laboratory evaluation samples, electronic data audits, and data packages provide an external QA reference for the program. A Contractor on-site evaluation system is also part of the external QA monitoring. A feedback loop provides the results of the various review functions to the Contractors through direct communication with the USEPA Regional CLP Project Officer (CLP PO).

2.1.2 This exhibit does not provide specific instructions for constructing QA Plans (QAPs), QC systems, or a QA organization. It is, however, an explanation of the QA/QC requirements of the Statement of Work (SOW). It outlines some minimum standards for QA/QC programs. It also includes specific items that are required in a QAP and by the QA/QC documentation detailed in the contract. Delivery of this documentation provides USEPA with a complete data package which will stand alone, and limits the need for contact with the Contractor or with an analyst, at a later date, if some aspect of the analysis is questioned.

2.1.3 To assure the product delivered by the Contractor meets the requirements of the contract, and to improve interlaboratory data comparison, the Contractor shall:

- Prepare and adhere to a written QAP, the elements of which are defined in Section 5;
- Prepare and adhere to QA/QC Standard Operating Procedures (SOPs), as described in Section 6;

- Adhere to the analytical methods in Exhibit D and associated QC requirements specified within Exhibit E;

- Verify and document analytical standards and retain documentation of the purity of neat materials, as well as the purity and accuracy of solutions obtained from private chemical supply houses;

- Submit all raw data and required documentation for Regional review;

- Submit results of all analyzed laboratory evaluation samples, including adherence to corrective action procedures;

- Submit, upon request, instrument data tapes and applicable documentation for tape audits, including a copy of the Sample Data Package;

- Submit on-site laboratory evaluations, and adhere to corrective action procedures; and

- Submit all original documentation generated during sample analyses for USEPA review.

3.0 GENERAL QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) REQUIREMENTS

The Contractor shall adhere to USEPA's Good Laboratory Practices for laboratory cleanliness with regard to glassware and apparatus. The Contractor shall also adhere to good laboratory practices with regard to reagents, solvents, and gases. For additional guidelines regarding these general laboratory procedures, see the Handbook for Analytical Quality Control in Water and Wastewater Laboratories USEPA-600/4-79-019, USEPA Environmental Monitoring Systems Laboratory, Cincinnati, Ohio, September 1982.

4.0 SPECIFIC QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

4.1 Purpose

4.1.1 The purpose of this document is to provide a uniform set of procedures for the analysis of organic constituents of samples, documentation of methods and their performance, and verification of the sample data generated. Although it is impossible to address all analytical situations in one document, this exhibit defines the minimum requirements for all major steps relevant to any organic analysis.

4.1.2 The primary function of the Contract Laboratory Program (CLP) QA/QC program is the definition of procedures for the evaluation and documentation of analytical methodologies, and the reduction and reporting of data. The objective is to provide a uniform basis for sample handling, instrument and methods maintenance, performance evaluation, and analytical data gathering and reporting. In many instances where methodologies are available, specific QC procedures are incorporated into the method documentation (Exhibit D).

4.1.3 The QA/QC procedures defined herein shall be used by the Contractor when performing the methods specified in Exhibit D. When additional QA/QC procedures are specified in Exhibit D, the Contractor shall follow those procedures, in addition to the procedures specified in this Exhibit.

4.2 Laboratory Audit and Intercomparison Study Program

The Contractor is required to participate in the Laboratory Audit and Intercomparison Study Program run by USEPA. The Contractor can expect to analyze at least two Performance Evaluation (PE) samples per calendar quarter during the contract period for organic analyses.

4.3 Annual Verification of Method Detection Limits (MDLs)

The Contractor shall perform and report annual verification of MDLs by the method specified in Exhibit D (by type, matrix, and model for each instrument used on the contract) to Sample Management Office (SMO), Quality Assurance Technical Support (QATS), and the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) as specified in Exhibit B. All the MDLs shall meet the requirements specified in Exhibit C.

4.4 Quality Assurance/Quality Control (QA/QC) Measurements

4.4.1 In this Exhibit, as well as other places within this Statement of Work (SOW), the term "analytical sample" discusses the required frequency or placement of certain QA/QC measurements. The term "analytical sample" includes all field samples, including PE samples, received from an external source. It also includes all required QA/QC samples [requested Matrix Spike/Matrix Spike Duplicate(s) (MS/MSD)] except those directly related to instrument calibration or calibration verification (calibration standards, Initial Calibration, Continuing Calibration, and tunes).

4.4.2 In order for the QA/QC information to reflect the status of the samples analyzed, all samples and their associated QA/QC analysis shall be analyzed under the same analytical operating and procedural conditions.

4.4.3 If any QC measurement fails to meet contract criteria, the analytical measurement must not be repeated prior to taking the appropriate corrective action, as specified in Exhibit D.

4.4.4 The Contractor shall report all QC data in the exact format specified in Exhibits B and H.

4.4.5 In addition, the Contractor shall establish a QA program with the objective of providing sound analytical chemical measurements. This program shall incorporate the QC procedures, any necessary corrective action, and all documentation required during data collection, as well as the quality assessment measures performed by management to ensure acceptable data production.

5.0 QUALITY ASSURANCE PLAN (QAP)

5.1 Introduction

The Contractor shall establish a Quality Assurance (QA) program with the objective of providing sound analytical chemical measurements. This program shall incorporate the Quality Control (QC) procedures, any necessary corrective action, and all documentation required during data collection as well as the quality assessment measures performed by management to ensure acceptable data production. The Contractor shall follow the USEPA EPA Requirements for Quality Management Plans (QA/R-2). An electronic version can be found at: http://www.epa.gov/quality1/qa_docs.html.

5.1.1 The Contractor shall prepare a written QAP that describes the procedures that are implemented to achieve the following:

- Maintain data integrity, validity, and usability;
- Ensure that analytical measurement systems are maintained in an acceptable state of stability and reproducibility;
- Detect problems through data assessment and establish corrective action procedures that keep the analytical process reliable; and
- Document all aspects of the measurement process to provide data that are technically sound and legally defensible.

5.1.2 The QAP shall present, in specific terms, the policies, organization, objectives, functional guidelines, and specific QA/QC activities designed to achieve the data quality requirements in the contract. Where applicable, Standard Operating Procedures (SOPs) pertaining to each element shall be included or referenced as part of the QAP. The QAP shall be paginated consecutively in ascending order. The QAP shall be available during on-site laboratory evaluations and shall be submitted to the designee within 7 days of written request by the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) or USEPA OSRTI Analytical Services Branch (ASB) Organic Program Manager (PM). Additional information relevant to the preparation of a QAP can be found in USEPA and American Society for Testing and Materials (ASTM) publications.

5.2 Required Elements of a Quality Assurance Plan (QAP)

The required elements of a laboratory's QAP are outlined in this section. This outline should be used as a framework for developing the QAP.

A. Organization and Personnel

1. QA Policy and Objectives (the mission and quality policy of the organization)

2. QA Management (the specific roles, authorities, and responsibilities of management and staff with respect to QA and QC activities)

   a. Organization

   b. Assignment of QA/QC Responsibilities

   c. Reporting Relationships (the means by which effective communications with personnel actually performing the work are assured)

   d. QA Document Control Procedures

   e. QA Program Assessment Procedures (the process used to plan, implement, and assess the work performed)

3. Personnel

   a. Résumés

   b. Education and Experience Pertinent to the contract

   c. Training Records and Progress

B. Facilities and Equipment

1. Instrumentation and Backup Alternatives

2. Maintenance Activities and Schedules

C. Document Control

1. Laboratory Notebook Policy

2. Sample Tracking/Custody Procedures

3. Logbook Maintenance and Archiving Procedures

4. Sample Delivery Group (SDG) File Organization, Preparation, and Review Procedures

5. Procedures for Preparation, Approval, Review, Revision, and Distribution of SOPs

6. Process for Revision of Technical or Documentation Procedures

D. Analytical Methodology

1. Calibration Procedures and Frequency

2. Sample Preparation/Extraction Procedures

3. Sample Analysis Procedures

4. Standards Preparation Procedures

5. Decision Processes, Procedures, and Responsibility for Initiation of Corrective Action

E. Data Generation

1. Data Collection Procedures

2. Data Reduction Procedures

3. Data Validation Procedures

4. Data Reporting and Authorization Procedures

F. Quality Control (QC)

1. Solvent, Reagent, and Adsorbent Check Analysis

2. Reference Material Analysis

3. Internal QC Checks

4. Corrective Action and Determination of QC Limit Procedures

5. Responsibility Designation

G. Quality Assurance (QA) (the process which measures the effectiveness of QA will be established and how frequently effectiveness will be measured)

1. Data QA

2. Systems/Internal Audits

3. Performance/External Audits

4. Corrective Action Procedures (the continual improvement based on lessons learned from previous experience)

5. QA Reporting Procedures

6. Responsibility Designation

5.3 Updating and Submitting the Quality Assurance Plan (QAP)

5.3.1 Initial Submission. During the contract solicitation process, the Contractor is required to submit their QAP to the USEPA Contracting Officer (CO). Within 60 days after contract award, the Contractor shall maintain, on file at their facility, a revised QAP that is fully compliant with the requirements of the contract. The Contractor shall maintain the QAP on file at the Contractor's facility for the term of the contract. The revised QAP will become the official QAP under the contract and may be used during legal proceedings. Both the initial QAP submission and the revised QAP shall be paginated consecutively in ascending order. The revised QAP shall include:

- Changes resulting from (1) the Contractor's internal review of their organization, personnel, facility, equipment, policy, and procedures and, (2) the Contractor's implementation of the requirements of the contract, and

- Changes resulting from USEPA's review of the laboratory evaluation sample data, bidder-supplied documentation, and recommendations made during the pre-award on-site laboratory evaluation.

5.3.1.1 The Contractor shall send a copy of the latest version of the QAP within 7 days of a request from the USEPA Regional CLP PO or the USEPA OSRTI ASB PM. The USEPA requestor will designate the recipients.

5.3.2 Subsequent Updates and Submissions. During the term of the contract, the Contractor shall amend the QAP when the following circumstances occur:

- USEPA modifies the technical requirements of the Statement of Work (SOW) or the contract;
- USEPA notifies the Contractor of deficiencies in the QAP documentation;
- USEPA notifies the Contractor of deficiencies resulting from USEPA's review of the Contractor's performance;
- The Contractor identifies deficiencies resulting from their internal review of the QAP documentation;
- The Contractor's organization, personnel, facility, equipment, policy, or procedures change; or
- The Contractor identifies deficiencies resulting from the internal review of changes in their organization, personnel, facility, equipment, policy, or procedures.

5.3.2.1 The Contractor shall amend the QAP within 14 days of when the circumstances listed in Section 5.3, result in a discrepancy between what was previously described in the QAP and what is presently occurring at the Contractor's facility. When the QAP is amended, all changes in the QAP shall be clearly marked (e.g., a bar in the margin indicating where the change is found in the document, highlighting the change by underlining the change, bold printing the change, or using a different print font) and a copy is sent to the USEPA Regional CLP PO and Quality Assurance Technical Support (QATS). The amended pages shall have the date on which the changes were implemented. The Contractor shall incorporate all amendments to the latest version of the QAP document. The Contractor shall archive all amendments to the QAP document for future reference by USEPA.

5.3.2.2 The Contractor shall send a copy of the latest version of the QAP document within 7 days of a written request from USEPA Regional CLP PO or the USEPA OSRTI ASB Organic PM. The USEPA requestor will designate the recipients.

5.4 Incentives/Sanctions

The Contractor shall amend the QAP as specified within this section. The QAP describes the policies and procedures for ensuring that work processes, products, or services satisfy expectations or specifications in the contract. Failure to comply with the requirements of this section may result in sanctions, as described in the contract.

6.0 STANDARD OPERATING PROCEDURES (SOPs)

6.1 Introduction

To obtain reliable results, adherence to prescribed analytical methodology is imperative. In any operation that is performed on a repetitive basis, reproducibility is best accomplished through the use of Standard Operating Procedures (SOPs). As defined by USEPA, an SOP is a written document that provides directions for the step-by-step execution of an operation, analysis, or action which is commonly accepted as the method for performing certain routine or repetitive tasks. The Contractor shall follow the USEPA Guideline for Preparing Standard Operating Procedures (SOPs) (QA/G-6). An electronic version can be found at: http://www.epa.gov/quality1/qa_docs.html.

6.1.1 SOPs prepared by the Contractor shall be functional (i.e., clear, comprehensive, up-to-date, and sufficiently detailed to permit duplication of results by qualified analysts). The SOPs shall be paginated consecutively, in ascending order.

6.1.2 All SOPs shall reflect activities as they are currently performed by the Contractor. In addition, all SOPs shall be:

- Consistent with current USEPA regulations, guidelines, and the Contract Laboratory Program (CLP) contract's requirements.
- Consistent with instrument manufacturers' specific instruction manuals.
- Available to USEPA during an on-site laboratory evaluation. A complete set of SOPs shall be bound together and available for inspection at such evaluations. During on-site laboratory evaluations, laboratory personnel shall demonstrate the application of the SOPs if requested.
- Available to the designated recipients within 7 days, upon request by the USEPA Regional CLP Project Officer (PO) or USEPA OSRTI Analytical Services Branch (ASB) Organic Program Manager (PM).
- Capable of providing for the development of documentation that is sufficiently complete to record the performance of all tasks required by the protocol.
- Capable of demonstrating the validity of data reported by the Contractor and explaining the cause of missing or inconsistent results.
- Capable of describing the corrective measures and feedback mechanism utilized when analytical results do not meet protocol requirements.
- Reviewed regularly and updated as necessary when contract, facility, or Contractor procedural modifications are made.
- Archived for future reference in usability or evidentiary situations.
- Available at specific work stations as appropriate.
- Subject to a document control procedure that precludes the use of outdated or inappropriate SOPs.

- Reviewed and signed by all Contractor personnel performing action identified in the SOP.

6.2 Format

The format for SOPs may vary depending upon the type of activity for which they are prepared; however, at a minimum, the following sections shall be included:

- Title page;
- Document Control;
- Scope and Applicability;
- Summary of Method;
- Definitions (acronyms, abbreviations, and specialized forms used in the SOP);
- Health and Safety;
- Personnel Qualifications;
- Interferences;
- Apparatus and Materials (list or specify, also note designated locations where found);
- Handling and Preservation;
- Instrument or Method Calibration;
- Sample Preparation and Analysis;
- Data Calculations;
- Procedures;
- Quality Control (QC) limits;
- Corrective action procedures, including procedures for secondary review of information being generated;
- Documentation description and example forms;
- Data Management and Records Management;
- Miscellaneous notes and precautions; and
- References.

6.3 Required SOPs

The Contractor shall maintain the following SOPs:

6.3.1 Evidentiary SOPs for required chain-of-custody and document control, as discussed in Exhibit F.

6.3.2 Sample receipt and storage

- Sample receipt and identification logbooks;
- Refrigerator temperature logbooks;
- Extract storage logbooks; and
- Security precautions.

6.3.3 Sample Preparation

- Reagent purity check procedures and documentation;
- Extraction procedures;
- Extraction bench sheets; and
- Extraction logbook maintenance.

6.3.4 Glassware Cleaning

6.3.5 Calibration (Balances, etc.)

- Procedures;
- Frequency requirements;
- Preventative maintenance schedule and procedures;
- Acceptance criteria and corrective actions; and
- Logbook maintenance authorization.

6.3.6 Analytical Procedures [for each analytical system, including Gel Permeation Chromatography (GPC)]

- Instrument performance specifications;
- Instrumental operating procedures;
- Data acquisition system operation;
- Procedures when automatic quantitation algorithms are overridden;
- QC required parameters;
- Analytical run/injection logbooks; and
- Instrumental error and editing flag descriptions and resulting corrective actions.

6.3.7 Maintenance Activities (for each analytical system, including GPC)

- Preventative maintenance schedule and procedures;
- Corrective maintenance determinants and procedures; and
- Maintenance authorization.

6.3.8 Analytical Standards

- Standard coding/identification and inventory system;
- Standards preparation logbook(s);
- Standards preparation procedures;
- Procedures for equivalency/traceability analyses and documentation;
- Purity logbook (primary standards and solvents);
- Storage, replacement, and labeling requirements; and
- QC and corrective action measures.

6.3.9 Data Reduction Procedures

- Data processing systems operation;
- Outlier identification methods;
- Identification of data requiring corrective action; and
- Procedures for format and/or forms for each operation.

6.3.10 Documentation Policy/Procedures

- Contractor/analysts' notebook policy, including review policy;
- Complete Sample Delivery Group (SDG) File (CSF) contents;
- CSF organization and assembly procedures, including review policy; and
- Document inventory procedures, including review policy.

6.3.11 Data Validation/Self-Inspection Procedures

- Data flow and chain-of-command for data review;
- Procedures for measuring precision and accuracy;
- Evaluation parameters for identifying systematic errors;
- Procedures to ensure that hardcopy and electronic deliverables are complete and compliant with the requirements in Exhibits B and H;
- Procedures to ensure that hardcopy deliverables are in agreement with their comparable electronic deliverables;
- Demonstration of internal Quality Assurance (QA) inspection procedure [demonstrated by supervisory sign-off on personal notebooks, internal Performance Evaluation (PE) samples, etc.];
- Frequency and type of internal audits (e.g., random, quarterly, spot checks, perceived trouble areas);

- Demonstration of problem identification, corrective actions, and resumption of analytical processing; sequence resulting from internal audit (i.e., QA feedback); and

- Documentation of audit reports (internal and external), audit response, corrective action, etc.

6.3.12 Data Management and Handling

- Procedures for controlling and estimating data entry errors;

- Procedures for reviewing changes to data and deliverables and ensuring traceability of updates;

- Life Cycle Management (LCM) procedures for testing, modifying, and implementing changes to existing computing systems including hardware, software, and documentation or installing new systems;

- Database security, backup, and archival procedures including recovery from system failures;

- System maintenance procedures and response time;

- Individual(s) responsible for system operation, maintenance, data integrity, and security;

- Specifications for staff training procedures;

- Storage, retrieval, and verification of the completeness and readability of Gas Chromatograph/Mass Spectrometer (GC/MS) and GC/ECD files transferred to electronic media; and

- Virus protection procedures for software and electronic deliverables.

6.4 Updating and Submitting SOPs

6.4.1 Initial Submission. During the contract solicitation process, the Contractor is required to submit their SOPs to the USEPA Contracting Officer (CO). Within 60 days after contract award, the Contractor shall prepare and maintain on file, at their facility, a complete, revised set of SOPs that are fully compliant with the requirements of the contract. The revised SOPs will become the official SOPs under the contract and may be used during legal proceedings. The Contractor shall maintain the complete set of SOPs on file at the Contractor's facility for the term of the contract. Both the initial submission of SOPs and the revised SOPs shall be dated and paginated consecutively in ascending order. The revised SOPs shall include:

- Changes resulting from (1) the Contractor's internal review of their procedures, and (2) the Contractor's implementation of the requirements of the contract, and

- Changes resulting from USEPA's review of the laboratory evaluation sample data, bidder-supplied documentation, and recommendations made during the pre-award on-site laboratory evaluation.

6.4.1.1 The Contractor shall send a complete set of the latest version of SOPs or individually requested SOPs within 7 days of a request from the USEPA Regional CLP PO or the USEPA OSRTI ASB Organic PM. The USEPA requestor will designate the recipients.

6.4.2 Subsequent Updates and Submissions. During the term of the contract, the Contractor shall amend the SOPs when the following circumstances occur:

- USEPA modifies the technical requirements of the Statement of Work (SOW) or the contract;
- USEPA notifies the Contractor of deficiencies in their SOP documentation;
- USEPA notifies the Contractor of deficiencies resulting from USEPA's review of the Contractor's performance;
- The Contractor's procedures change;
- The Contractor identifies deficiencies resulting from internal review of the SOPs documentation; or
- The Contractor identifies deficiencies resulting from internal review of the procedures.

6.4.2.1 Existing SOPs shall be amended or new SOPs shall be written within 14 days of when the circumstances listed in Section 6.4, result in a discrepancy between what was previously described in the SOPs and what is presently occurring at the Contractor's facility. All changes in the SOPs shall be clearly marked (e.g., a bar in the margin indicating where the change is found in the document, highlighting the change by underlining the change, bold printing the change, or using a different print font) and a copy is sent to the USEPA Regional CLP PO and Quality Assurance Technical Support (QATS). The amended/new SOPs shall have the date on which the changes were implemented.

6.4.2.2 When existing SOPs are amended or new SOPs are written, the Contractor shall document the reason(s) for the change, and maintain the amended SOPs or new SOPs on-file at the laboratory facility. Documentation of the reason(s) for the change shall be maintained on file with the amended SOPs or new SOPs.

6.4.2.3 The Contractor shall send a complete set of the latest version of SOPs or individually requested SOPs within 7 days of a request from the USEPA Regional CLP PO or the USEPA OSRTI ASB Organic PM. The USEPA requestor will designate the recipients.

6.5 Incentives/Sanctions

The Contractor shall amend SOPs as specified within this section. The SOPs specify analytical procedures in greater detail than appear in Exhibit D. Adherence to these requirements will ensure that the procedures are conducted in a standard, reliable, and reproducible process as described in this SOW. Failure to comply with the requirements specified herein may result in sanctions, as described in the contract.

7.0 ANALYTICAL STANDARDS REQUIREMENTS

7.1 Overview

USEPA will not supply analytical reference standards either for direct analytical measurements or for the purpose of traceability. All Contractors shall be required to prepare from neat materials or purchase from private chemical supply houses those standards necessary to successfully and accurately perform the analyses required in this protocol.

7.2 Preparation of Chemical Standards from the Neat High Purity Bulk Material

7.2.1 If a Contractor cannot obtain analytical reference standards, the Contractor may prepare their own chemical standards. Contractors shall obtain the highest purity possible when purchasing neat chemical standards. When standards are purchased at less than 97% purity, the Contractor shall document the reason why a higher purity could not be obtained.

7.2.2 If required by the manufacturer, the chemical standards shall be kept sealed and refrigerated when not being used in the preparation of standard solutions. Proper storage of chemicals is essential to safeguard them from decomposition.

7.2.3 The purity of a compound can sometimes be misrepresented by a chemical supply house. Since knowledge of purity is needed to calculate the concentration of solute in a solution standard, it is the Contractor's responsibility to have analytical documentation proving the purity of each compound is correctly stated. Purity confirmation, when performed, should use either differential scanning calorimetry, Gas Chromatography with Flame Ionization Detection (GC/FID), High Performance Liquid Chromatography (HPLC), Infrared (IR) spectrometry, or other appropriate techniques. Use of two or more independent methods is recommended. The correction factor for impurity when weighing neat materials in the preparation of solution standards is:

EQ. 1 Weight of Impure Compound

$$\text{weight of impure compound} = \frac{\text{weight of pure compound}}{(\text{percent purity} / 100)}$$

Where "weight of pure compound" is that required to prepare a specific volume of a standard solution at a specified concentration.

7.2.4 When compound purity is assayed to be 97% or greater, the weight may be used without correction to calculate the concentration of the stock standard. If the compound purity is assayed to be less than 97%, the weight shall be corrected when calculating the concentration of the stock solution.

7.2.5 Mis-identification of compounds occasionally occurs and it is possible that a mis-labeled compound may be received from a chemical supply house. It is the Contractor's responsibility to have analytical documentation ascertaining that all compounds used in the preparation of solution standards are correctly identified.

Identification confirmation, when performed, shall use GC/Mass Spectrometry (GC/MS) analysis on at least two different analytical columns, or other appropriate techniques.

7.2.6 Calculate the weight of material to be weighed out for a specified volume, taking into account the purity of the compound and the desired concentration. A second person shall verify the accuracy of the calculations. Check balances for accuracy with a set of standard weights every 12 hours. All weighing shall be performed on an analytical balance to the nearest 0.1 mg and verified by a second person. The solvent used to dissolve the solute shall be compatible with the protocol in which the standard is to be used; the solute shall be soluble, stable, and nonreactive with the solvent. In the case of a multicomponent solution, the components must not react with each other.

7.2.7 Transfer the solute to a volumetric flask and dilute to the specified solution volume with solvent after ensuring dissolution of the solute in the solvent. Sonication or warming may be performed to promote dissolution of the solute. This solution shall be called the primary standard and all subsequent dilutions shall be traceable back to the primary standard.

7.2.8 Log notebooks shall be kept for all weighing and dilutions. All subsequent dilutions from the primary standard and the calculations for determining their concentrations shall be recorded and verified by a second person. All solution standards shall be refrigerated, if required, when not in use. All solution standards shall be clearly labeled as to the identity of the compound or compounds, the standard ID number of the solution, concentration, date prepared, solvent, expiration date of the solution, special storage requirements (if any), and initials of the preparer.

7.3 Purchase of Chemical Standards Already in Solution

Solutions of analytical reference standards can be purchased by Contractors provided the solutions meet the following criteria.

7.3.1 Contractors shall maintain the following documentation to verify the integrity of the standard solutions:

- Mass spectral identification confirmation of the solution,
- Purity confirmation of the solution, and
- Chromatographic and quantitative documentation that the solution standard was Quality Control (QC) checked according to the following section.

7.3.2 The quality of reference standards purchased shall be demonstrated statistically and analytically by a method of the supplier's choice. One way this may be demonstrated is to prepare and analyze three solutions: a high standard, a low standard, and a standard at the target concentration (Sections 7.3.2.1 and 7.3.2.2). The Contractor shall have documentation to demonstrate that the analytical results for the high standard and low standard are consistent with the difference in theoretical concentrations. This is done by the Student's t-test in Section 7.3.2.4. If this is achieved, the Contractor shall then demonstrate that the concentration of the target standard lies midway between the concentrations of the low and high standards. This is done by the Student's t-test in Section 7.3.2.5. The standard is then certified to be within 10% of the

target concentration using the equations in Section 7.3.2.6. If this procedure is used, the Contractor shall document that the following have been achieved.

7.3.2.1 Two solutions of identical concentration shall be prepared independently from neat materials. An aliquot of the first solution shall be diluted to the intended concentration (the "target standard"). One aliquot is taken from the second solution and diluted to a concentration 10% greater than the target standard. This is called the "high standard". One further aliquot is taken from the second solution and diluted to a concentration 10% less that the target standard. This is called the "low standard".

7.3.2.2 Six replicate analyses of each standard (a total of 18 analyses) shall be performed in the following sequence: low standard; target standard; high standard; low standard; target standard; high standard; etc.

7.3.2.3 The mean and variance of the six results for each solution shall be calculated.

EQ. 2 Mean

$$\text{Mean} = \frac{\sum_{i=1}^{6} Y_i}{6}$$

EQ. 3 Variance

$$\frac{\sum_{i=0}^{6} Y_i^2 - 6(\text{MEAN})^2}{5}$$

The values Y_i represent the results of the six analyses of each standard. The means of the low, target, and high standards are designated M_1, M_2, and M_3, respectively. The variances of the low, target, and high standards are designated V_1, V_2, and V_3, respectively. Additionally, a pooled variance, V_p, is calculated.

EQ. 4 Pooled Variance

$$V_p = \frac{\frac{V_1}{0.81} + V_2 + \frac{V_3}{1.21}}{3}$$

If the square root of V_p is less than 1% of M_2, then $M_2^2/10{,}000$ shall be used as the value of V_p in all subsequent calculations.

7.3.2.4 The test statistic shall be calculated.

EQ. 5 Low and High Standard Test Statistic

$$\text{Test Statistic} = \frac{\left| \frac{M_3}{1.1} - \frac{M_1}{0.9} \right|}{\sqrt{\frac{V_p}{3}}}$$

If the test statistic exceeds 2.13, then the supplier has failed to demonstrate a 20% difference between the high and low standards. In such a case, the standards are not acceptable.

7.3.2.5 EQ. 6 Target Standard Test Statistic

$$\text{Test Statistic} = \frac{\left| M_2 - \frac{M_1}{1.8} - \frac{M_3}{2.2} \right|}{\sqrt{\frac{V_p}{4}}}$$

If the test statistic exceeds 2.13, then the target standard concentration has not been demonstrated to be midway between the high and low standards. In such a case, the standards are not acceptable.

7.3.2.6 The 95% confidence intervals for the mean result of each standard shall be calculated.

EQ. 7 Low Standard Interval

$$\text{Interval for Low Standard} = M_1 \pm 2.13\sqrt{\frac{V_p}{6}}$$

EQ. 8 Target Standard Interval

$$\text{Interval for Target Standard} = M_2 \pm 2.13\sqrt{\frac{V_p}{6}}$$

EQ. 9 High Standard Interval

$$\text{Interval for High Standard} = M_3 \pm 2.13\sqrt{\frac{V_p}{6}}$$

7.3.2.6.1 These intervals shall not overlap. If overlap is observed, the ability to discriminate the 10% difference in concentrations has not been demonstrated. In such a case, the standards are not acceptable.

7.3.2.6.2 In any event, the Contractor is responsible for the quality of the standards employed for analyses under the contract.

7.4 Documentation of the Verification and Preparation of Chemical Standards

It is the responsibility of each Contractor to maintain the necessary documentation to show that the chemical standards they have used in the performance of Contract Laboratory Program (CLP) analyses conform to the requirements previously listed.

7.4.1 Weighing logbooks, calculations, chromatograms, mass spectra, etc., whether produced by the Contractor or purchased from chemical supply houses, shall be maintained by the Contractor and may be subject to review during on-site laboratory evaluations. In those cases where the documentation is supportive of the analytical results of data packages sent to USEPA, such documentation is to be kept on file by the Contractor for a period of one year.

7.4.2 Upon request by the USEPA Regional CLP Project Officer (CLP PO), the Contractor shall submit, to the designated recipients, their most recent previous year's (12 months) documentation for the verification and preparation of chemical standards within 14 days of receipt of the request.

7.4.3 USEPA will periodically generate a report discussing deficiencies in the Contractor's documentation for the verification and preparation of chemical standards or may discuss the deficiencies during an on-site laboratory evaluation. In a detailed letter to the USEPA Regional CLP PO and CLP QA Coordinator, the Contractor shall address the deficiencies and the subsequent corrective action implemented by the Contractor to correct the deficiencies within 14 days of receipt of the report or the on-site laboratory evaluation.

7.4.4 If new Standard Operating Procedures (SOPs) are required to be written or if existing SOPs are required to be rewritten or amended because of deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

7.5 Incentives/Sanctions

The Contractor shall obtain the highest purity possible when purchasing chemical standards specified within this section. The use of high purity standards will ensure a more accurate identification and quantitation of analytes described in the Statement of Work (SOW). Failure to meet the requirements set forth in this section may result in sanctions, as described in the contract.

8.0 CONTRACT COMPLIANCE SCREENING (CCS)

8.1 Overview

8.1.1 Contract Compliance Screening (CCS) is one aspect of the Government's contractual right of inspection of analytical data. CCS examines the Contractor's adherence to the contract requirements based on the Sample Data Package delivered to USEPA.

8.1.2 CCS is performed by the Sample Management Office (SMO) under the direction of USEPA. To assure a uniform review, a set of standardized procedures has been developed to evaluate the Sample Data Package submitted by a Contractor against the technical and completeness requirements of the contract. USEPA reserves the right to add and/or delete individual checks.

8.2 CCS Results

CCS results are distributed to the Contractor and all other data recipients. The Contractor has 6 business days to correct deficiencies. The Contractor shall send all corrections to the Regional client and SMO within 6 business days. CCS results are used in conjunction with other information to measure overall Contractor performance and to take appropriate actions to correct deficiencies in performance.

8.3 CCS Trend Report

USEPA will periodically generate a CCS trend report that summarizes CCS results over a given period of time. USEPA will send the CCS trend report or discuss the CCS trend report during an on-site laboratory evaluation. In a detailed letter to the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) and the USEPA Contracting Officer (CO), the Contractor shall address the deficiencies and the subsequent corrective action implemented by the Contractor to correct the deficiencies within 14 days of receipt of the report or the on-site laboratory evaluation.

8.4 Incentives/Sanctions

If new Standard Operating Procedures (SOPs) are required to be written, or if existing SOPs are required to be rewritten or amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

The Contractor shall correct deficiencies and resubmit the data within 6 business days, as specified within this section. Resubmission and correction of the data will ensure that the end user is reviewing contractually compliant data described in the Statement of Work (SOW). Correct resubmission of the data may also result in a reduction in overall sanctions. Specific details on incentives can be found in the contract. If the Contractor fails to adhere to the requirements listed in this section, the Contractor will be in noncompliance with the contract and may be subjected to sanctions, as described in the contract.

9.0 REGIONAL DATA REVIEW

9.1 Overview

Contractor data are generated to meet the specific needs of the USEPA Regions. In order to verify the usability of data for the intended purpose, each Region reviews data from the perspective of the end user, based upon functional guidelines for data review that have been developed jointly by the Regions and the USEPA OSRTI Analytical Services Branch (ASB). Each Region uses these guidelines as the basis for data evaluation. Individual Regions may augment the basic guideline review process with additional review based on Region-specific or site-specific concerns. Regional reviews, like the sites under investigation, vary based on the nature of the problems under investigation and the Regional response appropriate to the specific circumstances.

9.1.1 Regional data reviews, relating usability of the data to a specific site, are part of the collective assessment process. They complement the review performed by the Sample Management Office (SMO), which is designed to identify contractual discrepancies, and the review performed by USEPA OSRTI ASB, which is designed to evaluate Contractor and method performance. These individual evaluations are integrated into a collective review that is necessary for Program and Contractor administration and management and may be used to take appropriate action to correct deficiencies in the Contractor's performance.

10.0 PROFICIENCY TESTING

As a means of measuring and evaluating both the Contractor's and the method's analytical performance, the Contractor must participate in USEPA's Proficiency Testing Program. USEPA's Proficiency Testing Program involves the analysis of Case-specific Performance Evaluation (PE) samples and Quarterly Blind (QB) Audits. The Contractor's analytical PE samples and QB results will be used by USEPA to assess and verify the Contractor's continuing ability to produce acceptable analytical data in accordance with the contractual requirements. The Contractor must receive a passing score of 75% to be in compliance with the contract.

10.1 Performance Evaluation (PE) Samples

10.1.1 The PE sample(s) may be scheduled with the Contractor as frequently as on an Sample Delivery Group (SDG)-by-SDG basis. The PE samples may be sent either by the Regional Client or the USEPA OSRTI Analytical Services Branch (ASB). PE samples will assist USEPA in monitoring Contractor performance.

10.1.2 PE samples will be provided as either single-blinds (recognizable as a PE sample but of unknown composition), or as double-blinds (not recognizable as a PE sample and of unknown composition). The Contractor will not be informed of either the compounds or the concentrations in the PE samples.

10.1.3 The Contractor may receive the PE samples as either full volume samples or ampulated/bottled concentrates from USEPA or a designated USEPA Contractor. The PE samples shall come with instructions concerning the unique preparation procedures, if any, required to reconstitute the PE samples (i.e., the required dilution of the PE sample concentrate). PE samples are to be extracted and/or analyzed with the rest of the routine samples in the SDG. The Contractor shall prepare and analyze the PE sample using the procedure described in the sample preparation and method analysis sections of Exhibit D. All contract required Quality Control (QC) shall also be met. The PE sample results are to be submitted in the SDG deliverable package per normal reporting procedures detailed in Exhibit B.

10.1.4 In addition to PE sample preparation and analysis, the Contractor shall be responsible for correctly identifying and quantitating the analytes included in each PE sample. When PE sample results are received by USEPA, the PE sample results will be evaluated for correct analytical identification and quantitation. The PE sample evaluation will be provided to the Contractor via coded evaluation sheets, by compound. USEPA will notify the Contractor of unacceptable performance. USEPA reserves the right to adjust the PE sample acceptance windows in order to compensate for any unanticipated difficulties with a particular PE sample.

10.2 Quarterly Blind (QB) Audits

10.2.1 A QB Audit is a unique analytical Case containing only PE samples (i.e., referred to as QB samples). The QB samples will be scheduled by USEPA OSRTI ASB through the Sample Management Office (SMO). QB samples assist USEPA in monitoring Contractor performance.

10.2.2 QB samples will be provided as single-blinds (recognizable as a PE sample but of unknown composition). The Contractor will not be informed of either the compounds or the concentrations in the PE samples.

10.2.3 The Contractor may receive the QB samples as either full volume samples or ampulated/bottled concentrates from USEPA or a designated USEPA Contractor. The QB samples shall come with instructions concerning the unique preparation procedures, if any, required to reconstitute the QB samples (i.e., the required dilution of the QB sample concentrate). The Contractor shall prepare and analyze the QB samples using the procedure described in the sample preparation and method analysis sections of Exhibit D. All contract required QC shall also be met. The QB sample results are to be submitted in the SDG deliverable package per normal reporting procedures detailed in Exhibit B.

10.2.4 In addition to QB sample preparation and analysis, the Contractor shall be responsible for correctly identifying and quantitating the compounds included in each QB sample. When QB sample results are received by USEPA, the QB sample results will be scored for correct analytical identification and quantitation. The QB sample scoring will be provided to the Contractor via coded evaluation sheets, by compound. USEPA will notify the Contractor of unacceptable performance. The Contractor's QB sample performance will be assessed into one of the following three categories:

10.2.4.1 **Acceptable, No Response Required**: Score greater than or equal to 90%. The data meets most or all of the scoring criteria. No response is required.

10.2.4.2 **Acceptable, Response Explaining Deficiencies Required**: Score greater than or equal to 75%, but less than 90%. Deficiencies exist in the Contractor's performance. Corrective action response required.

10.2.4.3 **Unacceptable Performance, Response Explaining Deficiencies Required**: Score less than 75%. Corrective action response required.

10.2.5 In the case of Section 10.2.4.2 or 10.2.4.3, the Contractor shall describe the deficiency(ies) and the action(s) taken to correct the deficiency(ies) in a corrective action letter to the USEPA Contracting Officer (CO), USEPA Regional Contract Laboratory Program Project Officer (CLP PO), and the CLP Quality Assurance (QA) Coordinator within 14 days of receipt of notification from USEPA.

10.2.6 In the case of Section 10.2.4.2 or 10.2.4.3, if new Standard Operating Procedures (SOPs) are required to be written, or if existing SOPs are required to be rewritten or amended because of deficiencies and subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

10.2.7 The Contractor shall be notified by the USEPA CO concerning agreement or disagreement with the proposed remedy for unacceptable performance.

10.2.8 A Remedial QB Audit is a unique analytical Case containing only QB samples. A Remedial QB Audit may be scheduled by USEPA OSRTI ASB with the Contractor(s) for any of the following reasons: unacceptable PE sample performance; unacceptable QB sample performance; and/or major change in the laboratory (e.g., relocation, new owner, or high turn-over of key personnel). Sections 10.2.2 through 10.2.7 apply to the Remedial QB Audit process.

10.3 Incentives/Sanctions

The Contractor shall analyze PE and QB samples and provide acceptable analytical results in accordance with the contractual requirements as described in this section. If the Contractor fails to adhere to the requirements listed in this section, the Contractor will be in noncompliance with the contract and may be subjected to sanctions, as described in the contract.

11.0 ELECTRONIC DATA QUALITY ASSURANCE (QA) MONITORING AUDITS

11.1 Overview

Periodically, USEPA requests the instrument electronic data from Contractors for a specific Case to perform electronic data audits. Generally, electronic data submissions and audits are requested for the following reasons.

- Program overview;
- Indication of data quality problems;
- Support for on-site audits; and
- Specific Regional requests.

11.1.1 Depending upon the reason for an audit, the instrument electronic data from a recent Case, a specific Case, or a Performance Evaluation (PE) sample may be requested. Electronic data audits provide a mechanism to assess adherence to contractual requirements and to ensure the consistency of data reported on the hardcopy/electronic deliverables with that generated on analytical instruments. This function provides external monitoring of Program Quality Control (QC) requirements and checks adherence of the Contractor to internal QA procedures. In addition, electronic data audits enable USEPA to evaluate the utility, precision, and accuracy of the analytical methods.

11.1.2 The Contractor shall store <u>all</u> raw and processed electronic analytical data in appropriate instrument manufacturer's format, uncompressed, and with no security codes. The data shall include all necessary data files for a complete reconstruction of the previously submitted hardcopy and electronic deliverable data package. All associated raw data files in the instrument manufacturer proprietary software format must be submitted if those files contain data or instrumental parameters regarding any analysis and/or correction applied to an instrument or analytical result. This instrument electronic data shall include data for all samples and all QC samples, including but not limited to: blanks; Matrix Spike/Matrix Spike Duplicates (MS/MSDs); Laboratory Control Samples (LCSs); initial calibrations; continuing calibrations; calibration verification standards, including resolution check samples and Performance Evaluation Mixtures (PEMs), Gel Permeation Chromatography (GPC), single component and multicomponent and Florisil cartridge check samples and associated calibrations; and instrument performance check solutions [4-Bromoflurobenzene (BFB) and decafluorotriphenylphosphine (DFTPP)] as well as all Contractor-generated spectral libraries and quantitation reports required to generate the data package. In addition, the Contractor shall supply raw data for the Method Detection Limit (MDL) studies and values for the year in which the Sample Delivery Group (SDG) was analyzed. The Contractor shall maintain a written reference logbook

of data files of the EPA Sample Number, calibration data, standards, blanks, and MS/MSDs. The logbook shall include EPA Sample Numbers, and standard and blank IDs, identified by Case and SDG.

11.1.3 The Contractor is required to retain the instrument electronic data for 3 years after submission of the reconciled Complete SDG File (CSF). Electronic media shipped to the USEPA designated recipient must be fully usable by the recipient. Diskettes must be MS-DOS formatted, 3.5-inch, high density, 1.44 MB and tapes must be either 4 mm or 8 mm. Alternative means for delivery of electronic data may be utilized by the Contractor upon prior written approval from USEPA. When submitting electronic instrument data to USEPA, the following materials shall be delivered in response to the request.

11.1.3.1 All associated raw data files for all analytical samples, all QC samples, blanks, MS/MSDs, initial calibrations, continuing calibrations, calibration verification standards, including resolution check samples and PE mixtures, GPC single component and multicomponent Florisil cartridge check samples and associated calibrations, and instrument performance check solutions (BFB and DFTPP).

11.1.3.2 All processed data files and quantitation output files associated with the raw data files described in Section 11.1.3.1.

11.1.3.3 All associated identifications and calculation files (method files) used to generate the data submitted in the data package. This includes, but is not limited to, results files, acquisition files, calibration files, and method files.

11.1.3.4 All Contractor-generated Mass Spectral library files (NIST/EPA/NIH and/or Wiley, or equivalent, library <u>not</u> required).

11.1.3.5 A copy of the Contractor's reference logbook relating data files to EPA Sample Number, BFB or DFTPP, calibration data, standards, blanks, and MS/MSDs. The logbook shall include EPA Sample Numbers and laboratory file identifiers for all samples, blanks, and standards, identified by Case and SDG.

11.1.3.6 A printout of the directory of all files in each directory, including all subdirectories and the files contained therein.

11.1.3.7 A copy (hardcopy) of the completed Sample Data Package.

11.1.3.8 A statement attesting to the completeness of the electronic instrument data submission, signed and dated by the Contractor's Laboratory Manager. The Contractor shall also provide a statement attesting that the data reported have not been altered in any way. These statements shall be part of a cover sheet that includes the following information relevant to the data tape submission:

- Contractor name;
- Date of submission;
- Case Number;
- SDG Number;
- Instrument make and model number;
- Instrument operating software name and version;

- Data software name and version used for acquisition, re-quantitation, and hardcopy/report generation;
- Data system computer;
- System operating software;
- Data system network;
- Data backup software;
- Data backup hardware;
- Data analysis software;
- Media type and volume of data (in MB) backed up; and
- Names and telephone numbers of two Contractor contacts for further information regarding the submission.

11.2 Submission of the Instrument Electronic Data

Upon request of the USEPA Regional Contract Laboratory Program Project Officer (CLP PO), the Contractor shall send the required instrument electronic data and all necessary documentation to the USEPA designated recipient [e.g., Quality Assurance Technical Support (QATS)] within 7 days of notification.

11.3 Responding to the Electronic Data Audit Report

After completion of the electronic data audit, USEPA may send a copy of the electronic data audit report to the Contractor or may discuss the electronic data audit report at an on-site laboratory evaluation. In a detailed letter to the USEPA Regional CLP PO, the Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the electronic data audit report within 14 days of receipt of the report or on-site laboratory evaluation.

11.3.1 If new Standard Operating Procedures (SOPs) are required to be written or if existing SOPs are required to be rewritten or amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

11.4 Incentives/Sanctions

The Contractor shall submit to electronic data audits and adhere to the requirements specified in this section. Resubmission and correction of electronic data will ensure that the end user is reviewing contractually compliant data described in the Statement of Work (SOW). If the Contractor fails to adhere to the requirements listed in this section, the Contractor will be in noncompliance with the contract and may be subjected to sanctions, as described in the contract.

12.0 DATA PACKAGE AUDITS

12.1 Overview

Data package audits are performed by USEPA for program overview and specific Regional concerns. Standardized procedures have been established to assure uniformity of the auditing process. Data packages are periodically selected from recently received Cases. They are evaluated for the technical quality of hardcopy raw data, Quality Assurance (QA), and adherence to contractual requirements. This function provides external monitoring of program Quality Control (QC) requirements. Data package audits are used to assess the technical quality of the data and evaluate overall Contractor performance. Audits provide USEPA with an in-depth inspection and evaluation of the Sample Data Package with regard to achieving QA/QC acceptability. A thorough review of the raw data is completed, including: all instrument readouts used for the sample results; instrument printouts; quantitation reports; chromatograms; spectra; library searches and other documentation for deviations from the contractual requirements; a check for transcription and calculation errors; a review of the qualifications of the Contractor personnel involved with the Case; and a review of the latest version of all Standard Operating Procedures (SOPs) on file.

12.2 Responding to the Data Package Audit Report

12.2.1 After completing the data package audit, USEPA will send a copy of the data package audit report to the Contractor or discuss the data package audit report on an on-site laboratory evaluation. In a detailed letter to the USEPA Regional Contract Laboratory Program Project Officer (CLP PO), the Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the data package audit report within 14 days of receipt of the report.

12.2.2 An alternate delivery schedule may be proposed by the Contractor, but it is the sole decision of USEPA, represented either by the USEPA Regional CLP PO or the USEPA Contracting Officer (CO), to approve or disapprove the alternate delivery schedule. If an alternate delivery schedule is proposed, the Contractor shall describe, in a letter to the USEPA Regional CLP PO and the USEPA CO, why the Contractor is unable to meet the delivery schedule listed in this section. The USEPA Regional CLP PO will not grant an extension for greater than 14 days for the Contractor's response letter to the Sample Data Package report. The Contractor shall proceed and not assume that an extension will be granted until so notified by the USEPA Regional CLP PO or the USEPA CO.

12.2.3 If new SOPs are required to be written or SOPs are required to be amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

12.3 Incentives/Sanctions

The Contractor shall discuss the corrective actions implemented to resolve the deficiencies listed in the data package audit report within 14 days of receipt of the comments from USEPA, as specified within this section. The data package audits ensure that the policies and procedures identified in this Statement of Work (SOW) meet the requirements of the contract. If the Contractor fails to adhere to the requirements listed in this section, the Contractor will be in

noncompliance with the contract and may be subjected to sanctions, as described in the contract.

13.0 ON-SITE LABORATORY EVALUATIONS

13.1 Overview

At a frequency dictated by a Contractor's performance, the USEPA Regional Contract Laboratory Program Project Officer (CLP PO), or the USEPA Contracting Officer's (CO's) authorized representative will conduct an on-site laboratory evaluation. On-site laboratory evaluations are carried out to monitor the Contractor's ability to meet selected terms and conditions specified in the contract. The evaluation process incorporates two separate categories: Quality Assurance (QA) On-Site Evaluation and Evidentiary Audit.

13.2 Quality Assurance On-Site Evaluation

Quality Assurance Evaluators inspect the Contractor's facilities to verify the adequacy and maintenance of instrumentation, the continuity, experience and education of personnel, and the acceptable performance of analytical and Quality Control (QC) procedures for adherence to the contract requirements.

13.2.1 The Contractor shall expect that items to be monitored will include, but are not limited to, the following items:

- Size, cleanliness, and organization of the facility;
- Quantity, age, availability, scheduled maintenance, and performance of instrumentation;
- Availability, appropriateness, and utilization of the Quality Assurance Plan (QAP) and Standard Operating Procedures (SOPs);
- Staff qualifications and experience, and personnel training programs;
- Analysis of Performance Evaluation (PE) sample(s);
- Reagents, standards, and sample storage facilities;
- Standard preparation logbooks and raw data;
- Bench sheets and analytical logbook maintenance and review; and
- Review of the Contractor's sample analysis/data package inspection/data management procedures.

13.2.2 Prior to an on-site evaluation, various documentation pertaining to performance of the specific Contractor is integrated into a profile package for discussion during the evaluation. Items that may be included are: previous on-site reports; Quarterly Blind (QB) and/or Performance Evaluation (PE) sample score results; Regional review of data; Contractor performance information provided by the Region; Regional QA materials; data audit reports; results of CCS; and data trend reports.

13.3 Evidentiary Audit

Evidence auditors conduct an on-site laboratory evaluation to determine if Contractor policies and procedures are in place to satisfy evidence

handling requirements as stated in Exhibit F. The evidence audit is comprised of a procedural audit, an audit of written SOPs, and an audit of analytical project file documentation.

13.3.1 Procedural Audit. The Contractor shall perform analysis of PE sample(s) in the presence of the USEPA-designated team during the procedural audit. The procedural audit will be comprised of everything from sample receipt to data package assembly and completion. This includes the review and examination of actual SOPs and accompanying documentation for the following Contractor operations: sample receiving; sample storage; sample identification; sample security; sample tracking (from receipt to completion of analysis); analytical project file organization and assembly; and proper disposal of samples and co-generated wastes.

13.3.2 Written SOPs Audit. The written SOPs audit consists of review and examination of the written SOPs to determine if they are accurate and complete for the following Contractor operations: sample receiving; sample storage; sample identification; sample security; sample tracking (from receipt to completion of analysis); and analytical project file organization and assembly.

13.3.3 Analytical Project File Evidence Audit. The analytical project file evidence audit consists of review and examination of the analytical project file documentation. The auditors review the files to determine:

- The accuracy of the document inventory;
- The completeness of the file;
- The adequacy and accuracy of the document numbering system;
- Traceability of sample activity;
- Identification of activity recorded on the documents; and
- Error correction methods.

13.4 Discussion of the On-Site Team's Findings

The QA and evidentiary auditors discuss their findings with the USEPA Regional CLP PO prior to debriefing the Contractor. During the debriefing, the auditors present their findings and recommendations for corrective actions necessary to the Contractor personnel. A report which discusses deficiencies found during the on-site audit will be sent to the Contractor to provide further clarification of findings. In a detailed letter to the USEPA Regional CLP PO and USEPA QA Coordinator, the Contractor shall discuss the deficiencies and the subsequent corrective actions implemented by the Contractor to resolve the deficiencies within 14 days of receipt of report or the on-site laboratory evaluation.

13.4.1 If new SOPs are required to be written or if existing SOPs are required to be rewritten or amended because of the deficiencies and the subsequent corrective action implemented by the Contractor, the Contractor shall write/amend and submit the SOPs per the requirements listed in Exhibit E, Section 6.

13.5 Incentives/Sanctions

The contractor shall submit to on-site evaluations, as specified within this section. The on-site evaluations ensure that the policies and procedures identified in this Statement of Work (SOW) meet the requirements of the contract. If the Contractor fails to adhere to the requirements listed in the section, the Contractor will be in non-compliance with the contract and may be subjected to sanctions, as described in the contract.

14.0 DATA MANAGEMENT

14.1 Overview

Data management procedures are defined as procedures specifying the acquisition or entry, update, correction, deletion, storage, and security of computer-readable data and files. These procedures shall be in written form and contain a clear definition for all databases and files used to generate or resubmit deliverables. Key areas of concern include: system organization (including personnel and security); documentation operations; traceability; and Quality Control (QC).

14.1.2 Data manually entered from hardcopy shall be subject to QC checks and the error rates estimated. Systems shall prevent entry of incorrect or out-of-range data and alert data entry personnel of errors. In addition, data entry error rates shall be estimated and recorded on a monthly basis by re-entering a statistical sample of the data entered and calculating discrepancy rates by data element.

14.2 Documenting Data Changes

The record of changes in the form of corrections and updates to data originally generated, submitted, and/or resubmitted shall be documented to allow traceability of updates. Documentation shall include the following for each change.

- Justification or rationale for the change.
- Initials of the person making the change(s). Data changes shall be implemented and reviewed by a person or group independent of the source generating the deliverable.
- Documentation of changes shall be retained according to the schedule of the original deliverable.
- Resubmitted deliverables shall be reinspected as a part of the Contractor's internal inspection process prior to resubmission. The entire deliverable, not just the changes, shall be inspected.
- The Laboratory Manager shall approve changes to originally submitted deliverables.
- Documentation of data changes may be requested by Contractor auditors.

14.3 Life Cycle Management (LCM) Procedures

LCM procedures shall be applied to computer software systems developed by the Contractor to be used to generate and edit contract deliverables. Such systems shall be thoroughly tested and documented prior to utilization.

14.3.1 A software test and acceptance plan including test requirements, test results, and acceptance criteria shall be developed, followed, and available in written form.

14.3.2 System changes shall not be made directly to production systems generating deliverables. Changes shall be made first to a development system and tested prior to implementation.

14.3.3 Each version of the production system will be given an identification number, date of installation, date of last operation, and will be archived.

14.3.4 System and operations documentation shall be developed and maintained for each system. Documentation shall include a user's manual and an operations and maintenance manual.

14.3.5 This documentation shall be available for on-site review and/or upon written request by the USEPA Regional Contract Laboratory Program Project Officer (CLP PO) or USEPA OSRTI Analytical Services Branch (ASB) Organic Program Manager (PM).

14.4 Personnel Responsibilities

Individual(s) responsible for the following functions shall be identified.

- System operation and maintenance, including documentation and training;
- Database integrity, including data entry, data updating and QC; and
- Data and system security, backup, and archiving.

EXHIBIT F

CHAIN-OF-CUSTODY, DOCUMENT CONTROL, AND WRITTEN STANDARD OPERATING PROCEDURES

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Exhibit F - Chain-of-Custody, Document Control, and
Written Standard Operating Procedures

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1.0 INTRODUCTION

1.1 A sample is physical evidence collected from a facility or from the environment. Controlling evidence is an essential part of the hazardous waste investigation effort. To ensure that the U.S. Environmental Protection Agency's (USEPA's) sample data and records supporting sample-related activities are admissible and have weight as evidence in future litigation, Contractors are required to maintain USEPA samples under chain-of-custody and to account for all samples and supporting records of sample handling, preparation, and analysis. Contractors shall maintain sample identity, sample custody, and all sample-related records according to the requirements in this exhibit.

1.2 Purpose of the Evidence Requirements

The purpose of the evidence requirements include:

- Ensuring traceability of samples while in the possession of the Contractor;
- Ensuring custody of samples while in the possession of the Contractor;
- Ensuring the integrity of sample identity while in the possession of the Contractor;
- Ensuring sample-related activities are recorded on documents or in other formats for USEPA sample receipt, storage, preparation, analysis, and disposal;
- Ensuring all laboratory records for each specified Sample Delivery Group (SDG) will be accounted for when the project is completed; and
- Ensuring that all laboratory records directly related to USEPA samples are assembled and delivered to USEPA or, prior to delivery, are available upon USEPA's request.

2.0 STANDARD OPERATING PROCEDURES (SOPs)

The Contractor shall implement the following Standard Operating Procedures (SOPs) for sample receiving; sample identification; sample security; sample storage; sample tracking and document control; computer-resident sample data control; and Complete Sample Delivery Group (SDG) File (CSF) and Portable Document Format (PDF) file organization and assembly to ensure accountability of USEPA sample chain-of-custody, as well as control of all USEPA sample-related records.

2.1 Sample Receiving

2.1.1 The Contractor shall designate a Sample Custodian responsible for receiving USEPA samples.

2.1.2 The Contractor shall designate a representative to receive USEPA samples in the event that the Sample Custodian is not available.

2.1.3 Upon receipt, the condition of shipping containers and sample containers shall be inspected and recorded on Form DC-1 by the Sample Custodian or a designated representative.

2.1.4 Upon receipt, the condition of the custody seals (intact/broken) shall be inspected and recorded on Form DC-1 by the Sample Custodian or a designated representative.

2.1.5 The Sample Custodian or a designated representative shall verify and record on Form DC-1 the agreement or disagreement of information recorded on all documents received with samples and information recorded on sample containers.

2.1.6 The Sample Custodian or a designated representative shall verify and record the following information on Form DC-1 as samples are received and inspected:

- Presence or absence and condition of custody seals on shipping and/or sample containers;
- Custody seal numbers when present;
- Condition of the sample bottles;
- Presence or absence of airbills or airbill stickers;
- Airbill or airbill sticker numbers;
- Presence or absence of Traffic Report/Chain of Custody Records (TR/COCs) or Packing Lists;
- Sample tags listed/not listed on TR/COCs;
- Presence or absence of cooler temperature indicator bottle;
- Cooler temperature;
- Date of receipt;
- Time of receipt;
- EPA Sample Numbers;

- Presence or absence of sample tags;
- Sample tag numbers;
- Assigned laboratory numbers;
- Remarks regarding condition of sample shipment, etc.;
- Samples delivered by hand; and
- Problems and discrepancies.

2.1.7 The Sample Custodian or a designated representative shall sign, date, and record the time on all accompanying forms, when applicable, at the time of sample receipt (e.g., TR/COCs or packing lists, and airbills).

NOTE: Initials are not acceptable.

2.1.8 The Contractor shall contact the Sample Management Office (SMO) to resolve problems and discrepancies including, but not limited to: absent documents, conflicting information, absent or broken custody seals; insufficient sample volume; absent temperature indicator bottle, unsatisfactory sample condition (e.g., leaking sample container), and samples not preserved to the proper pH.

2.1.9 The Contractor shall record the resolution of all problems and discrepancies communicated through SMO.

2.2 Sample Identification

2.2.1 The Contractor shall maintain the identity of USEPA samples and prepared samples (including extracted samples, digested samples, and distilled samples) throughout the laboratory.

2.2.2 Each sample and sample preparation container shall be labeled with the EPA Sample Number or a unique laboratory sample identification number.

2.3 Sample Security

2.3.1 The Contractor shall demonstrate that USEPA sample custody is maintained from receiving through retention or disposal. A sample is in custody if:

- It is in your possession; or
- It is in your view after being in your possession; or
- It is locked in a secure area after being in your possession; or
- It is in a designated secure area (secure areas shall be accessible only to authorized personnel).

2.3.2 The Contractor shall demonstrate security of designated secure areas.

2.4 Sample Storage

The Contractor shall designate storage areas for USEPA samples and prepared samples.

2.5 Sample Tracking and Document Control

2.5.1 The Contractor shall record all activities performed on USEPA samples.

2.5.2 Titles that identify the recorded activities shall be printed on each page of all laboratory documents. Activities include, but are not limited to: sample receipt, sample storage, sample preparation, and sample analysis. When a document is a record of analysis, the instrument type and parameter group (e.g., GC/MS-VOA) shall be included in the title.

2.5.3 When columns are used to organize information recorded on laboratory documents, the information recorded in the columns shall be identified in a column heading.

2.5.4 Reviewers' signatures shall be identified on laboratory documents when reviews are conducted.

NOTE: Individuals recording review comments on computer-generated raw data are not required to be identified unless the written comments address data validity.

2.5.5 The laboratory name shall be identified on preprinted laboratory documents.

2.5.6 Each laboratory document entry shall be dated as MM/DD/YYYY (e.g., 01/01/2000) and signed (or initialed) by the individual(s) responsible for performing the recorded activity at the time the activity is recorded.

2.5.7 Notations on laboratory documents shall be recorded in ink.

2.5.8 Corrections to laboratory data reporting forms and raw data shall be made by drawing single lines through the errors and entering the correct information. Information shall not be obliterated or rendered unreadable. Corrections and additions to information shall be signed (or initialed) and dated.

2.5.9 Unused portions of laboratory documents shall be lined-out.

2.5.10 Pages in bound and unbound logbooks shall be sequentially numbered.

2.5.11 Instrument-specific run logs shall be maintained to enable the reconstruction of run sequences.

2.5.12 Logbook entries shall be in chronological order.

2.5.13 Logbook entries shall include only one SDG per page, except in the event where the SDGs "share" Quality Control (QC) samples (e.g., instrument run logs and extraction logs).

2.5.14 Information inserted into laboratory documents shall be affixed permanently in place. The individual responsible for inserting information shall sign and date across the insert and logbook page at the time information is inserted.

2.5.15 The Contractor shall document disposal or retention of USEPA samples, remaining portions of samples, and prepared samples.

2.5.16 Each page in bound and unbound logbooks shall be dated (MM/DD/YYYY) and signed (no initials) at the bottom by the individual recording

the activity (if a single entry is made on a page) or by the last individual recording information on the page (if multiple entries are on the same page).

2.6 Computer-Resident Sample Data Control

2.6.1 Contractor personnel responsible for original data entry shall be identified at the time of data input.

2.6.2 The Contractor shall make changes to electronic data in a manner that ensures that the original data entry is preserved, the editor is identified, and the revision date is recorded.

2.6.3 The Contractor shall routinely verify the accuracy of manually entered data, electronically entered data, and data acquired from instruments.

2.6.4 The Contractor shall routinely verify documents produced by the electronic data collection system to ensure accuracy of the information reported.

2.6.5 The Contractor shall ensure that the electronic data collection system is secure.

2.6.5.1 The electronic data collection system shall be maintained in a secure location.

2.6.5.2 Access to the electronic data collection system functions shall be limited to authorized personnel through utilization of software security techniques (e.g., log-ons or restricted passwords).

2.6.5.3 Electronic data collection systems shall be protected from the introduction of external programs or software (e.g., viruses).

2.6.6 The Contractor shall designate archive storage areas for electronic data and the software required to access the data.

2.6.7 The Contractor shall designate an individual responsible for maintaining archives of electronic data, including the software.

2.6.8 The Contractor shall maintain the archives of electronic data and necessary software in a secure location (secure areas shall be accessible only to authorized personnel).

2.7 Complete Sample Delivery Group File (CSF) Organization and Assembly

2.7.1 The Contractor shall designate a Document Control Officer responsible for the organization and assembly of the CSF.

2.7.2 The Contractor shall designate a representative responsible for the organization and assembly of the CSF in the event that the Document Control Officer is not available.

2.7.3 The Contractor shall maintain documents relating to the CSF in a secure location.

2.7.4 All original laboratory forms and copies of SDG-related logbook pages shall be included in the CSF.

2.7.5 Copies of laboratory documents in the CSF shall be photocopied in a manner to provide complete and legible replicates.

2.7.6 Documents relevant to each SDG including, but not limited to, the following shall be included in the CSF:

- Logbook pages;
- Bench sheets;
- Mass spectra;
- Chromatograms;
- Screening records;
- Preparation records;
- Repreparation records;
- Analytical records;
- Reanalysis/Reextraction records;
- Records of failed or attempted analysis;
- Custody records;
- Sample tracking records;
- Raw data summaries;
- Computer printouts;
- Correspondence;
- FAX originals;
- Library search results; and
- Other.

2.7.7 The Document Control Officer or a designated representative shall ensure that sample tags are encased in clear plastic bags before placing them in the CSF.

2.7.8 CSF documents shall be organized and assembled on an SDG-specific basis.

2.7.9 Original documents which include information relating to more than one SDG (e.g., TR/COCs, calibration logs) shall be filed in the CSF of the lowest SDG number, and copies of these originals shall be placed in the other CSF(s). The Document Control Officer or a designated representative shall record the following statement on the copies in (indelible) dark ink:

COPY
ORIGINAL DOCUMENTS ARE INCLUDED IN CSF _____

_____
Signature

_____
Date

2.7.10 All CSFs shall be submitted with a completed Form DC-2. All resubmitted CSFs shall be submitted with a new or revised Form DC-2.

2.7.11 Each item in the CSF and resubmitted CSFs shall be inventoried and assembled in the order specified on Form DC-2. Each page of the CSF shall be stamped with a sequential number. Page number ranges shall be recorded in the columns provided on Form DC-2. Intentional gaps in the page numbering sequence shall be recorded in the "Comments" section on Form DC-2. When inserting new or inadvertently omitted documents, the Contractor shall identify them with unique accountable numbers. The unique accountable numbers and the locations of the documents shall be recorded in the "Other Records" section on Form DC-2.

2.7.12 Before shipping each CSF, the Document Control Officer or a designated representative shall verify the agreement of information recorded on all documentation and ensure that the information is consistent and the CSF is complete.

2.7.13 The Document Control Officer or a designated representative shall document the shipment of deliverable packages including what was sent, to whom the package was sent, the date, and the carrier used.

2.7.14 Shipments of deliverable packages, including resubmittals, shall be sealed with custody seals by the Document Control Officer or a designated representative in a manner such that opening the packages would break the seals.

2.7.15 Custody seals shall be signed and dated by the Document Control Officer or a designated representative when sealing deliverable packages.

2.8 Data in PDF Organization and Assembly

2.8.1 The Contractor shall designate a Document Control Officer responsible for the organization and assembly of the PDF file.

2.8.2 The Contractor shall designate a representative responsible for the organization and assembly of the PDF file in the event that the Document Control Officer is not available.

2.8.3 The Contractor shall maintain documents relating to the PDF file in a secure location.

2.8.4 In addition to all required deliverables identified in the laboratory's contract and the SOM01.X Statement of Work (SOW), the laboratory shall provide a complete copy of the hardcopy deliverable in PDF on a Compact Disc (CD).

2.8.5 The PDF file should be organized in accordance to directions provided in Exhibit B, "Reporting Requirements and Order of Data Deliverables" of the SOM01.X SOW. The PDF file shall be bookmarked for ease of data retrieval and navigation. PDF files over 100 MB should be broken down into smaller files, with each smaller file given a descriptive file name.

2.8.6 Organic data shall be bookmarked using a hierarchal bookmark structure (i.e., an overview or "parent" bookmark, and a subordinate or "child" bookmark nested underneath the "parent" bookmark). Refer to Exhibit B, Section 2.8, Table 2 for the specific hierarchal bookmark structure.

2.8.7 Before shipping each PDF file, the Document Control Officer or a designated representative shall verify the agreement of information recorded in the PDF file and ensure that the information is consistent and the PDF file is complete.

2.8.8 The Document Control Officer or a designated representative shall document the shipment of deliverable packages including what was sent, to whom the package was sent, the date, and the carrier used.

2.8.9 Shipments of deliverable packages, including resubmittals, shall be sealed with custody seals by the Document Control Officer or a designated representative in a manner such that opening the packages would break the seals.

2.8.10 Custody seals shall be signed and dated by the Document Control Officer or a designated representative when sealing deliverable packages.

3.0 WRITTEN STANDARD OPERATING PROCEDURES (SOPs)

The Contractor shall develop and implement the following written SOPs for sample receiving, sample identification, sample security, sample storage, sample tracking and document control, computer-resident sample data control, and Complete Sample Delivery Group (SDG) File (CSF) and Portable Document Format (PDF) file organization and assembly to ensure accountability for USEPA sample chain-of-custody and control of all USEPA sample-related records.

3.1 Sample Receiving

3.1.1 The Contractor shall have written SOPs for sample receiving that accurately reflect the procedures used by the laboratory.

3.1.2 The written SOPs for sample receiving shall ensure that the procedures listed below are in use at the laboratory.

3.1.2.1 The condition of shipping containers and sample containers are inspected and recorded on Form DC-1 upon receipt by the Sample Custodian or a designated representative.

3.1.2.2 The condition of custody seals are inspected and recorded on Form DC-1 upon receipt by the Sample Custodian or a designated representative.

3.1.2.3 The agreement or disagreement of information recorded on shipping documents with information recorded on sample containers is verified and recorded on Form DC-1 by the Sample Custodian or a designated representative.

3.1.2.4 The following information is recorded on Form DC-1 by the Sample Custodian or a designated representative as samples are received and inspected:

- Presence or absence and condition of custody seals on shipping and/or sample containers;
- Custody seal numbers, when present;
- Condition of the sample bottles;
- Presence or absence of airbill or airbill stickers;
- Airbill or airbill sticker numbers;
- Presence or absence of TR/COCs or Packing Lists;
- Sample tag numbers listed/not listed on TR/COCs,
- Presence or absence of cooler temperature indicator bottle;
- Cooler temperature;
- Date of receipt;
- Time of receipt;
- EPA Sample Numbers;
- Presence or absence of sample tags;

- Sample tag numbers;
- Assigned laboratory numbers;
- Samples delivered by hand; and
- Problems and discrepancies.

3.1.2.5 The Sample Custodian or a designated representative shall sign, date, and record the time on all accompanying forms (e.g., TR/COCs or packing lists, and airbills), when applicable, at the time of sample receipt.

NOTE: Initials are not acceptable.

3.1.2.6 The Contractor shall contact the Sample Management Office (SMO) to resolve problems and discrepancies including, but not limited to: absent documents; conflicting information; absent or broken custody seals; insufficient sample volume; absent temperature indicator bottle; unsatisfactory sample condition (e.g., leaking sample container); and samples not preserved to the proper pH.

3.1.2.7 The Contractor shall record resolution of problems and discrepancies communicated through SMO.

3.2 Sample Identification

3.2.1 The Contractor shall have written SOPs for sample identification that accurately reflect the procedures used by the laboratory.

3.2.2 The written SOPs for sample identification shall ensure that the procedures listed below are in use at the laboratory.

3.2.2.1 The identity of USEPA samples and prepared samples is maintained throughout the laboratory when:

- The Contractor assigns unique laboratory sample identification numbers, the written SOPs shall include a description of the procedure used to assign these numbers;
- The Contractor uses prefixes or suffixes in addition to laboratory sample identification numbers, the written SOPs shall include the definitions; and
- The Contractor uses methods to uniquely identify fractions/parameter groups and matrix type, the written SOPs shall include a description of these methods.

3.2.2.2 Each sample and sample preparation container is labeled with the CLP sample number or a unique laboratory sample identification number.

3.3 Sample Security

3.3.1 The Contractor shall have written SOPs for sample security that accurately reflect the procedures used by the laboratory.

3.3.2 The written SOPs for sample security shall include the items listed below.

3.3.2.1 Procedures that ensure the following:

- Sample custody is maintained; and
- The security of designated secure areas is maintained.

3.3.2.2 A list of authorized personnel who have access to locked storage areas.

3.4 Sample Storage

3.4.1 The Contractor shall have written SOPs for sample storage that accurately reflect the procedures used by the laboratory.

3.4.2 The written SOPs for sample storage shall describe locations, contents, and identities of all storage areas for USEPA samples and prepared samples in the laboratory.

3.5 Sample Tracking and Document Control

3.5.1 The Contractor shall have written SOPs for sample tracking and document control that accurately reflect the procedures used by the laboratory.

3.5.2 The written SOPs for sample tracking and document control shall include the items listed below.

3.5.2.1 Examples of all laboratory documents used during sample receiving, sample storage, sample transfer, sample analyses, CSF organization and assembly, and sample retention or disposal.

3.5.2.2 Procedures that ensure the following:

- All activities performed on USEPA samples are recorded;
- Titles that identify the activities recorded are printed on each page of all laboratory documents;
- Information recorded in columns is identified with column headings;
- Reviewers' signatures are identified on laboratory documents;
- The laboratory name is included on preprinted laboratory documents;
- Laboratory document entries are signed and dated as MM/DD/YYYY (e.g., 01/01/2000);
- Entries on all laboratory documents are recorded in ink;
- Corrections and additions to laboratory documents are made by drawing single lines through the errors, entering the correct information, and initialing and dating the new information;
- Unused portions of laboratory documents are lined-out;
- Pages in bound and unbound logbooks are sequentially numbered;
- Instrument-specific run logs are maintained to enable the reconstruction of run sequences;

- Logbook entries are recorded in chronological order;
- Entries are recorded for only one SDG on a page, except in the events where SDGs "share" Quality Control (QC) samples (e.g., instrument run logs and extraction logs);
- Each page in bound and unbound logbooks shall be dated as (MM/DD/YYYY) and signed (no initials) at the bottom by the individual recording the activity (if a single entry is made on a page) or by the last individual recording information on the page (if multiple entries are on the same page);
- Information inserted in laboratory documents is affixed permanently, signed, and dated across the insert; and
- The retention or disposal of USEPA samples, remaining portions of samples, and prepared samples is documented.

3.6 Computer-Resident Sample Data Control

3.6.1 The Contractor shall have written SOPs for computer-resident sample data control that accurately reflect the procedures used by the laboratory.

3.6.2 The written SOPs for computer-resident sample data control shall include the items listed below.

3.6.2.1 Procedures which ensure the following:

- Contractor personnel responsible for original data entry are identified;
- Changes to electronic data are made such that the original data entry is preserved, the editor is identified, and the revision date is recorded;
- The accuracy of manually entered data, electronically entered data, and data acquired from instruments is verified;
- Report documents produced by the electronic data collection system are routinely verified to ensure the accuracy of the information reported;
- Off-site backup and storage of electronic data is maintained;
- Electronic data collection system security is maintained; and
- Archives of electronic data and accompanying software are maintained in a secure location.

3.6.2.2 Descriptions of archive storage areas for the electronic data and the software required to access data archives.

3.6.2.3 A list of authorized personnel who have access to electronic data collection system functions and to archived data.

3.7 CSF Organization and Assembly

3.7.1 The Contractor shall have written SOPs for CSF organization and assembly that accurately reflect the procedures used by the laboratory.

3.7.2 The written SOPs for CSF organization and assembly shall ensure that the procedures listed below are in use at the laboratory.

- Documents relating to the CSF are maintained in a secure location.
- All original laboratory forms and copies of SDG-related logbook pages are included in the CSF.
- Laboratory documents are photocopied in a manner to provide complete and legible replicates.
- All documents relevant to each SDG are included in the CSF.
- Sample tags are encased in clear plastic bags by the Document Control Officer or a designated representative before placing them in the CSF.
- The CSF is organized and assembled on an SDG-specific basis.
- In the event that an original document contains information relating to more than one SDG, the original documents are filed in the CSF of the lowest SDG number and copies are referenced to the originals.
- Each CSF is submitted with a completed Form DC-2, and resubmitted CSFs are submitted with a new or revised Form DC-2.
- Each page of the CSF is stamped with a sequential number and the page number ranges are recorded in the columns provided on Form DC-2. Intentional gaps in the page numbering sequence are recorded in the "Comments" section of Form DC-2. Inserted documents are recorded in the "Other Record" section of Form DC-2.
- Consistency and completeness of the CSF is verified by the Document Control Officer or a designated representative.
- Shipments of deliverable packages are documented by the Document Control Officer or a designated representative.
- Deliverable packages are shipped by the Document Control Officer or a designated representative using custody seals in a manner such that opening the packages would break the seals.
- Custody seals are signed and dated by the Document Control Officer or a designated representative before placing them on deliverable packages.

3.8 PDF File Organization and Assembly

3.8.1 The Contractor shall have written SOPs for PDF file organization and assembly that accurately reflect the procedures used by the laboratory.

3.8.2 The written SOPs for PDF file organization and assembly shall ensure that the procedures listed below are in use at the laboratory.

- PDF files are maintained in a secure location.
- The PDF file is organized and assembled as specified in Exhibit B, Section 2.8 and Exhibit F, Section 2.8.

- Completeness and compliance of the PDF file is verified by the Document Control Officer or a designated representative.

- Shipments of deliverable packages are documented by the Document Control Officer or a designated representative.

- Deliverable packages are shipped by the Document Control Officer or a designated representative using custody seals in a manner such that opening the packages would break the seals.

- Custody seals are signed and dated by the Document Control Officer or a designated representative before placing them on deliverable packages.

EXHIBIT G

GLOSSARY OF TERMS

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ALIQUOT - A measured portion of a field sample, standard, or solution taken for sample preparation and/or analysis.

ANALYSIS DATE/TIME - The date and military time (24-hour clock) of the injection of the sample, standard, or blank into the Gas Chromatograph/Mass Spectrometer (GC/MS) or GC system.

ANALYTICAL METHOD - Specifies the procedures for sample preparation, instrument calibration, sample analysis, and result calculations.

ANALYTICAL SEQUENCE - The actual instrumental analysis of the samples from the time of instrument calibration through the analysis of the final Continuing Calibration Verification (CCV) or Continuing Calibration Blank (CCB). All sample analyses during the analytical sequence are subject to the QC protocols set forth in Exhibits D and E of the contract unless otherwise specified in the individual methods.

ANALYTICAL SERVICES BRANCH (ASB) - The division of United States Environmental Protection Agency's (USEPA) Office of Superfund Remediation and Technology Innovation (OSRTI) responsible for the overall management of the Contract Laboratory Program (CLP).

ASTM - American Society for Testing and Materials. A developer and provider of voluntary consensus standards.

BAR GRAPH SPECTRUM - A plot of the mass-to-charge ratio (m/e) versus relative intensity of the ion current.

BATCH - A group of samples prepared at the same time in the same location using the same method.

BLANK - An analytical sample designed to assess specific sources of laboratory contamination. See individual definitions for the following types of blanks: Method Blank; Instrument Blank; Storage Blank; and Sulfur Blank.

BREAKDOWN - A measure of the decomposition of certain analytes (DDT and Endrin) into by-products.

4-BROMOFLUOROBENZENE (BFB) - The compound chosen to establish mass spectral instrument performance check for volatile (VOA) analyses.

CALIBRATION FACTOR (CF) - A measure of the Gas Chromatographic response of a target analyte to the mass injected.

CALIBRATION STANDARDS - A series of known standard solutions used by the analyst for calibration of the instrument (i.e., preparation of the analytical curve). The solutions may or may not be subjected to the preparation method but contain the same matrix (i.e., the same amount of reagents and/or preservatives) as the sample preparations to be analyzed.

CASE - A finite, usually predetermined number of samples collected over a given time period from a particular site. Case Numbers are assigned by the Sample Management Office (SMO). A Case consists of one or more Sample Delivery Groups (SDGs).

CHARACTERIZATION - A determination of the approximate concentration range of compounds of interest used to choose the appropriate analytical protocol.

CLASS A GLASSWARE - Defined by ASTM standards as glassware used in measurement with the smallest degree of uncertainty or tolerance associated with the measurement of volume. For example, a Class A 5 mL volumetric flask will have ±0.02 mL tolerance. Class A volumetric glassware usually has a large "A" prominent near the label.

CLOSING CONTINUING CALIBRATION VERIFICATION - Last analytical standard run every 12 hours to verify the initial calibration accuracy of the system.

CONCENTRATION LEVEL (trace, low, or medium) - Characterization of sample fractions as trace concentration, low concentration, or medium concentration is made on the basis of the laboratory's preliminary screen, not on the basis of information entered on the Traffic Report/Chain of Custody Record (TR/COC) by the sampler.

CONTAMINATION - A component of a sample or an extract that is not representative of the environmental source of the sample. Contamination may stem from other samples, sampling equipment, while in transit, from laboratory reagents, laboratory environment, or analytical instruments.

CONTINUOUS LIQUID-LIQUID EXTRACTION (CLLE) - Used herein synonymously with the terms continuous extraction, continuous liquid extraction, and liquid extraction. This extraction technique involves boiling the extraction solvent in a flask and condensing the solvent above the aqueous sample. The condensed solvent drips through the sample, extracting the compounds of interest from the aqueous phase.

CONTRACT COMPLIANCE SCREENING (CCS) - A screening of electronic and hardcopy data deliverables for completeness and compliance with the contract. This screening is done under USEPA direction by the SMO contractor.

CONTRACT LABORATORY PROGRAM (CLP) - Supports USEPA' Superfund effort by providing a range of state-of-the-art chemical analytical services of known quality. This program is directed by the Analytical Services Branch of the USEPA Office of Superfund Remediation and Technology Innovation (OSRTI).

CONTRACT REQUIRED QUANTITATION LIMIT (CRQL) - Minimum level of quantitation acceptable under the contract Statement of Work (SOW).

DATE - MM/DD/YYYY - Where MM = 01 for January, 02 for February...,12 for December; DD = 01 to 31; YYYY = 1998, 1999, 2000, 2001, etc.

DAY - Unless otherwise specified, day shall mean calendar day.

DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP) - Compound chosen to establish mass spectral instrument performance check for semivolatile analysis.

DEUTERATED MONITORING COMPOUNDS (DMCs) - Compounds added to every calibration standard, blank, and sample used to evaluate the efficiency of the extraction/purge-and-trap procedures, and the performance of the Gas Chromatograph/Mass Spectrometer (GC/MS) systems. DMCs are isotopically labeled (deuterated) analogs of native target compounds. DMCs are not expected to be naturally detected in the environmental media.

EXTRACTABLE - A compound that can be partitioned into an organic solvent from the sample matrix and is amenable to Gas Chromatography. Extractables include semivolatile (SVOA), pesticide (PEST), and Aroclor (ARO) compounds.

EXTRACTED ION CURRENT PROFILE (EICP) - A plot of ion abundance versus time (or scan number) for ion(s) of specified mass(es).

FIELD BLANK - This is any sample that is submitted from the field and is identified as a blank. This includes trip blanks, rinsates, equipment blanks, etc.

FIELD QC - Any Quality Control samples submitted from the field to the laboratory. Examples include, but are not limited to: field blanks, field duplicates, and field spikes.

FIELD SAMPLE - A portion of material obtained from an assigned site to be analyzed that is contained in single or multiple containers and identified by a unique EPA Sample Number.

GAS CHROMATOGRAPH (GC) - The instrument used to separate analytes on a stationary phase within a chromatographic column. The analytes are volatized directly from the sample (VOA water and low-soil), volatized from the sample extract (VOA medium soil), or injected as extracts (SVOA, PEST, and ARO). In VOA and SVOA analysis, the compounds are detected by a Mass Spectrometer (MS). In Pesticide and Aroclor analysis, the compounds are detected by an Electron Capture Detector (ECD).

GEL PERMEATION CHROMATOGRAPHY (GPC) - A size-exclusion chromatographic technique that is used as a cleanup procedure for removing large organic molecules, particularly naturally occurring macro-molecules such as lipids, polymers, viruses, etc.

HOLDING TIME - The elapsed time expressed in days from the date of receipt of the sample by the Contractor until the date of its analysis.

Holding time = (sample analysis date - sample receipt date)

HYDROMATRIX™ - Diatomaceous earth-based material that is capable of adsorbing and retaining up to twice its weight of an aqueous media.

IN-HOUSE - At the Contractor's facility.

INITIAL CALIBRATION - Analysis of analytical standards for a series of different specified concentrations; used to define the quantitative response, linearity, and dynamic range of the response of the Mass Spectrometer (MS) or Electron Capture Detector (ECD) to the target compounds.

INSTRUMENT BLANK - A blank designed to determine the level of contamination associated with the analytical instruments.

INSUFFICIENT QUANTITY - When there is not enough volume (water sample) or weight (soil/sediment) to perform any of the required operations: sample analysis or extraction, Percent Moisture (%Moisture), Matrix Spike/Matrix Spike Duplicate (MS/MSD), etc. Exhibit D provides guidance for addressing this situation.

INTEGRATION SCAN RANGE - The scan number of the scan at the beginning of the area of integration to the scan number at the end of the area of integration. Performed in accordance with Exhibit D VOA and SVOA.

INTEGRATION TIME RANGE - The Retention Time (RT) at the beginning of the area of integration to the RT at the end of the area of integration.

INTERFERANTS - Substances which affect the analysis for the element of interest.

INTERNAL STANDARDS - Compounds added to every standard, blank, Matrix Spike/ Matrix Spike Duplicate (MS/MSD), sample (for volatiles), and sample extract (for semivolatiles) at a known concentration, prior to analysis. Instrument responses to internal standards are used as the basis for quantitation of the target compounds.

LABORATORY - Synonymous with Contractor, as used herein.

LABORATORY CONTROL SAMPLE (LCS) - An internal laboratory QC sample used to monitor the capability of the Contractor to perform the analytical method.

LABORATORY RECEIPT DATE - The date on which a sample is received at the Contractor's facility, as recorded on the shipper's delivery receipt and Sample Traffic Report/Chain of Custody Record. Also referred to as VTSR (Validated Time of Sample Receipt).

m/z - Mass to charge ratio; synonymous with "m/e".

MATRIX - The predominant material of which the sample to be analyzed is composed. For the purpose of this analytical method, a sample matrix is either water or soil/sediment. Matrix is not synonymous with phase (liquid or solid).

MATRIX EFFECT - In general, the effect of a particular matrix (water or soil/sediment) on the constituents with which it contacts. Matrix effects may prevent efficient purging/extraction of target analytes, and may affect Deuterated Monitoring Compound (DMC) and surrogate recoveries. In addition, non-target analytes may be extracted from the matrix causing interferences.

MATRIX SPIKE - Aliquot of a sample (water or soil) taken from one of the field samples to be analyzed within an SDG, fortified (spiked) with known quantities of specific compounds, and subjected to the entire analytical procedure in order to indicate the appropriateness of the method for the matrix by measuring recovery.

MATRIX SPIKE DUPLICATE - A second aliquot of the same sample as the Matrix Spike (above) that is spiked in order to determine the precision of the method.

METHOD BLANK - An analytical control consisting of all reagents, internal standards, and surrogate standards [or Deuterated Monitoring Compounds (DMCs) for VOA and SVOA], that is carried throughout the entire analytical procedure. The method blank is used to define the level of laboratory, background, and reagent contamination.

METHOD DETECTION LIMIT (MDL) - The concentration of a target parameter that, when a sample is processed through the complete method, produces a signal with 99 percent probability that it is different from the blank. For 7 replicates of the sample, the mean value must be 3.14s above the blank, where "s" is the standard deviation of the 7 replicates.

NARRATIVE (SDG Narrative) - Portion of the data package which includes laboratory, contract, Case, and Sample Number identification, and descriptive documentation of any problems encountered in processing the samples, along with corrective action taken and problem resolution. Complete Sample Delivery Group (SDG) Narrative specifications are included in Exhibit B.

OPENING CONTINUING CALIBRATION VERIFICATION - First analytical standard run every 12 hours to verify the initial calibration of the system.

PERCENT DIFFERENCE (%Difference) - As used in this analytical method and elsewhere to compare two values, the percent difference indicates both the direction and the magnitude of the comparison [i.e., the Percent Difference (%Difference) may be either negative, positive, or zero].

PERCENT MOISTURE (%Moisture) - An approximation of the amount of water in a soil/sediment sample made by drying an aliquot of the sample at 105°C. The Percent Moisture (%Moisture) determined in this manner also includes contributions from all compounds that may volatilize at or below 105°C, including water. Percent Moisture may be determined from decanted samples and from samples that are not decanted.

PERFORMANCE EVALUATION MIXTURE (PEM) - A calibration solution of specific analytes used to evaluate both recovery and Percent Breakdown (%Breakdown) as a measure of performance.

PERFORMANCE EVALUATION (PE) SAMPLE - A sample of known composition provided by USEPA for Contractor analysis. Used by USEPA to evaluate Contractor performance.

PREPARATION BLANK - An analytical control that contains reagent water and reagents, which is carried through the entire preparation and analytical procedure.

PREPARATION LOG - An official record of the sample preparation (digestion or distillation).

PRIMARY QUANTITATION ION - A contract specified ion used to quantitate a target analyte.

PROTOCOL - Describes the exact procedures to be followed with respect to sample receipt and handling, analytical methods, data reporting and deliverables, and document control. Used synonymously with analytical method.

PURGE-AND-TRAP (DEVICE) - Analytical technique (device) used to isolate volatile (purgeable) organics by stripping the compounds from water or soil by a stream of inert gas, trapping the compounds on an adsorbent such as a porous polymer trap, and thermally desorbing the trapped compounds onto the gas chromatographic column.

PURGEABLES - Volatile compounds.

QUALITY ASSURANCE TECHNICAL SUPPORT (QATS) Laboratory - A Contractor-operated facility operated under the QATS contract, awarded and administered by USEPA.

REAGENT WATER - Water in which an interferant is not observed at or above the minimum quantitation limit of the parameters of interest. The purity of this water must be equivalent to ASTM Type II reagent water of specification D1193-77, "Standard Specification for Reagent Water".

RECONSTRUCTED ION CHROMATOGRAM (RIC) - A mass spectral graphical representation of the separation achieved by a Gas Chromatograph; a plot of total ion current versus Retention Time (RT).

RELATIVE PERCENT DIFFERENCE (RPD) - As used in this analytical method and elsewhere to compare two values, the RPD is based on the mean of the two values, and is reported as an absolute value (i.e., always expressed as a positive number or zero).

RELATIVE RESPONSE FACTOR (RRF) - A measure of the relative mass spectral response of an analyte compared to its internal standard. RRFs are determined by analysis of standards and are used in the calculation of concentrations of analytes in samples.

RELATIVE RETENTION TIME (RRT) - The ratio of the Retention Time (RT) of a compound to that of a standard (such as an internal standard).

REPRESENTATIVE - Alternate or designee who has the knowledge and authority to perform a specific task.

RESOLUTION - Also termed Separation or Percent Resolution, the separation between peaks on a chromatogram, calculated by dividing the depth of the valley between the peaks by the peak height of the smaller peak being resolved, multiplied by 100.

RESOLUTION CHECK MIXTURE - A solution of specific analytes used to determine resolution of adjacent peaks; used to assess instrumental performance.

RESPONSE (Instrumental Response) - A measurement of the output of the Gas Chromatograph (GC) detector [Mass Spectrometer (MS), Electron Capture Detector (ECD), or Flame Ionization Detector (FID)] in which the intensity of the signal is proportionate to the amount (or concentration) detected. Measured by peak area or peak height.

RETENTION TIME (RT) - The time a target analyte is retained on a GC column before elution. The identification of a target analyte is dependent on a target compound's RT falling within the specified RT window established for that compound. The RT is dependent on the nature of the column's stationary phase, column diameter, temperature, flow rate, and other parameters.

ROUNDING RULES - If the figure is greater than or equal to 5, round up, otherwise round down. As an example, 11.443 is rounded down to 11.44 and 11.455 is rounded up to 11.46. If a series of multiple operations is to be performed (add, subtract, divide, multiply), all figures are carried through the calculations. Then the final answer is rounded to the proper number of significant figures. See Forms instructions (Exhibit B) for exceptions.

SAMPLE - A portion of material to be analyzed that is contained in single or multiple containers and identified by a unique sample number.

SAMPLE DELIVERY GROUP (SDG) - A unit within a sample Case that is used to identify a group of samples for delivery. An SDG is defined by one of the following, whichever occurs first:

- Each Case of field samples received ; or
- Each 20 field samples [excluding Performance Evaluation (PE) samples] within a Case; or
- Each 7 calendar day period (3 calendar day period for 7-day turnaround) during which field samples in a Case are received (said period beginning with receipt of the first sample in the SDG).

In addition, all samples and/or sample fractions assigned to an SDG must have been scheduled under the same contractual turnaround time. Preliminary Results have **no impact** on defining the SDG.

Samples may be assigned to SDGs by matrix (i.e., all soil samples in one SDG, all water samples in another), at the discretion of the laboratory.

SAMPLE MANAGEMENT OFFICE (SMO) - A Contractor-operated facility operated under the SMO contract, awarded and administered by USEPA.

SAMPLE NUMBER (EPA Sample Number) - A unique identification number designated by USEPA for each sample. The EPA Sample Number appears on the sample Traffic Report/Chain of Custody Record (TR/COC) which documents information on that sample.

SECONDARY QUANTITATION ION - Contract specified ion(s) to be used in quantitation of target analytes when interferences prevent the use of the primary quantitation ion.

SEMIVOLATILE COMPOUNDS - Compounds amenable to analysis by extraction of the sample with an organic solvent. Used synonymously with Base/Neutral and Acid (BNA) compounds.

SOIL - Used herein synonymously with soil/sediment.

SOP - Standard Operating Procedure.

SOW - Statement of Work.

STANDARD ANALYSIS - An analytical determination made with known quantities of target compounds; used to determine response factors.

STOCK SOLUTION - A standard solution which can be diluted to derive other standards.

STORAGE BLANK - Reagent water (two 40.0 mL aliquots) stored with volatile samples in an SDG. It is analyzed after all samples have been analyzed in the SDG and is used to determine the level of contamination acquired during storage.

SULFUR BLANK - A modified method blank that is prepared only when some of the samples in a batch are subjected to sulfur cleanup. It is used to determine the level of contamination associated with the sulfur cleanup procedure. When all of the samples are subjected to sulfur cleanup, then the method blank serves this purpose. When none of the samples are subjected to sulfur cleanup, no sulfur blank is required.

SURROGATES (Surrogate Standard) - For pesticides and Aroclors, compounds added to every blank, sample, Matrix Spike/Matrix Spike Duplicates (MS/MSDs), and standard. Surrogates are used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in environmental media.

TARGET COMPOUND LIST (TCL) - A list of compounds as designated in Exhibit C for analysis.

TENTATIVELY IDENTIFIED COMPOUNDS (TIC) - Compounds detected in samples that are not target compounds, internal standards, Deuterated Monitoring Compounds (DMCs), or surrogates. Up to 30 peaks, not including those identified as alkanes (those greater than 10% of the peak area or height of the nearest internal standard) are subjected to mass spectral library searches for tentative identification.

TIME - When required to record time on any deliverable item, time shall be expressed as Military Time [i.e., a 24-hour clock (0000 - 2359)].

TRAFFIC REPORT/CHAIN OF CUSTODY RECORD (TR/COC) - A USEPA sample identification form completed by the sampler, which accompanies the sample during shipment to the laboratory and is used to document sample identity, sample chain-of-custody, sample condition, and sample receipt by the laboratory.

TWELVE-HOUR TIME PERIOD - The 12-hour time period for Gas Chromatograph/Mass Spectrometer (GC/MS) system instrument performance check, standards calibration (initial or continuing calibration), and method blank analysis begins at the moment of injection of the Decafluorotriphenylphosphine (DFTPP) or 4-Bromofluorobenzene (BFB) analysis that the laboratory submits as documentation of instrument performance. The time period ends after 12 hours have elapsed according to the system clock. For pesticide and Aroclor analyses performed by Gas Chromatography/Electron Capture Detection (GC/ECD), the 12-hour time period in the analytical sequence begins at the moment of injection of the instrument blank that precedes sample analyses, and ends after 12 hours have elapsed according to the system clock.

ULTRASONIC CELL DISRUPTOR (SONICATOR) - A device that uses the energy from controlled ultrasound applications to mix, disperse, and dissolve organic materials from a given matrix.

USEPA ASB ORGANIC PROGRAM MANAGER - The USEPA Analytical Services Branch official who manages the CLP Organic program.

USEPA REGIONAL CLP PROJECT OFFICER - The Regional USEPA official responsible for monitoring laboratory performance and/or requesting analytical data or services from a CLP laboratory.

VALIDATED TIME OF SAMPLE RECEIPT (VTSR) - The date on which a sample is received at the Contractor's facility, as recorded on the shipper's delivery receipt and sample Traffic Report/Chain of Custody Record.

VOLATILE COMPOUNDS - Compounds amenable to analysis by the purge-and-trap technique. Used synonymously with purgeable compounds.

WET WEIGHT - The weight of a sample aliquot including moisture (undried).

WIDE BORE CAPILLARY COLUMN - A Gas Chromatographic column with an Internal Diameter (ID) that is greater than or equal to 0.53 mm. Columns with lesser diameters are classified as narrow bore capillary columns.

EXHIBIT H

FORMAT FOR ELECTRONIC DATA DELIVERABLES

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Exhibit H - Format for Electronic Data Deliverables

Table of Contents

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1.0 FORMAT CHARACTERISTICS

1.1 This constitutes an implementation of the Staged Electronic Data Deliverable (SEDD) based on analytical results and ancillary information required by the contract. Because this implementation is specific to the contract, not all data elements listed in the cross-program Document Type Definition (DTD) are required. This implementation is based on SEDD Specification Draft 5.1 that can be found at:

http://www.epa.gov/superfund/programs/clp/sedd.htm.

1.1.1 The SEDD deliverable consists of an eXtensible Markup Language (XML) file(s) compliant with the XML specification 1.0 of the World Wide Web Consortium (W3C). The deliverable must be well-formed based on the W3C XML specification and must be valid based on the DTD.

1.1.2 The Contractor shall create the deliverable using the UTF-8 (Unicode Transformation Format - 8 bit) character set.

1.1.3 The initial line of the deliverable shall be: <?xml version="1.0" encoding="UTF-8"?>.

1.1.4 The second line of the deliverable shall be a DOCTYPE line that contains the filename of the DTD. For example, the DOCTYPE line might look like <!DOCTYPE Header SYSTEM "ORGANICGENERAL_3_2.dtd"> where "Header" denotes the name of the root element, and "ORGANICGENERAL_3_2.dtd" denotes the filename of the DTD.

1.1.5 The use of XML comment lines is permitted at any position in the file after the first two lines.

1.2 This implementation includes detailed specifications for the required format of the content of each data element for each fraction. The content of each data element is specified as either literal (contained in quotes) which must appear exactly as shown (without quotes), or as a variable for which descriptions and formats are listed. Exhibit H, Section 2.0 describes requirements for each data element.

1.2.1 For this implementation, numeric data elements may contain numeric digits, a decimal place, and a leading minus sign. Values without a leading minus sign are assumed to be positive. Values must be reported to the specified precision or significance.

1.2.2 The values reported by the Contractor are used for Contract Compliance Screening (CCS) and data assessment. All calculated values, including final results and Contract Required Quantitation Limits (CRQLs) reported in the deliverable (rounded according to the rounding rules in Exhibit B) must match final values calculated by CCS from the raw data, sample data, and factors reported in the deliverable. The Contractor shall not use rounded intermediate values in calculating the final result, and no rounding shall be performed until reaching the final result.

2.0 DATA ELEMENTS

2.1 The Staged Electronic Data Deliverable consists of data elements arranged hierarchically by data nodes (parent elements). Figure 1 depicts the data node hierarchy. Each data element consists of a start tag, content, and an end tag. An element may contain other elements (child elements).

NOTE: There shall be no more than one occurrence of each child element within a node, unless the child element also behaves as a parent element. For example, in each SamplePlusMethod node, there may be only one occurrence of the element ClientSampleID, but there may be more than one occurrence of the element Analysis.

The tags, nodes, and hierarchy are specified in the Document Type Definition against which the deliverable will be validated (see Exhibit H, Section 5.0). The frequency requirements for each of the eleven data nodes applicable to this implementation are described below.

2.1.1 Header Node

One Header node must be reported for each fraction. Selected Ion Monitoring (SIM) analyses for Volatiles and Semivolatiles must be reported with a separate header node.

2.1.2 SamplePlusMethod Node

Each Header node must contain one SamplePlusMethod node for each field sample, field blank, dilution, reanalysis, Performance Evaluation sample, required Matrix Spike/Matrix Spike Duplicate samples, method blank, storage blank (Volatiles only), instrument blank (Volatiles, Pesticides, and Aroclors only), cleanup blank (Pesticides and Aroclors only), Laboratory Control Sample (Pesticides and Aroclors only), and non-client sample (Pesticides and Aroclors only) analyzed.

2.1.3 InstrumentQC Node

Each Header node must contain one InstrumentQC node for each initial calibration sequence, instrument performance check (tune), continuing calibration verification (CCV), Florisil Cartridge Check (Pesticides only), and GPC Calibration Check (Pesticides only) analyzed.

NOTE: Tunes may be reported as separate InstrumentQC nodes or may be included in InstrumentQC nodes for initial calibration or CCV. This will depend on whether the tune is analyzed as a separate injection or is combined with a calibration standard.

2.1.4 ReportedResult Node

Each SamplePlusMethod node must contain a ReportedResult node for each target compound. For Volatiles and Semivolatiles, each SamplePlusMethod node must contain a ReportedResult node for each Tentatively Identified Compound (TIC).

2.1.5 Handling Node

Each SamplePlusMethod node must contain one Handling node for Semivolatiles, Pesticides, and Aroclors containing information for any handling procedures (e.g., decanting) performed on the sample.

2.1.6 AnalysisGroup Node

Each initial calibration InstrumentQC node for multi-point calibration must contain one AnalysisGroup node containing summary data for the initial calibration.

2.1.7 Analysis Node

Each SamplePlusMethod node and InstrumentQC node must contain one Analysis node for Volatiles and Semivolatiles, and two Analysis nodes for Pesticides and Aroclors (one for each gas chromatography column).

2.1.8 Analyte Node

Each Analysis node under a SamplePlusMethod node must contain one Analyte node for each target compound, TIC, deuterated monitoring compound (Volatiles and Semivolatiles only), surrogate (Pesticides and Aroclors only), and internal standard (Volatiles and Semivolatiles only). Each Analysis node under an InstrumentQC node must contain one Analyte node for each target compound, deuterated monitoring compound (Volatiles and Semivolatiles only), surrogate (Pesticides and Aroclors only), and internal standard (Volatiles and Semivolatiles only). Each AnalysisGroup node must contain one Analyte node for each target compound, deuterated monitoring compound (Volatiles and Semivolatiles only), and surrogate (Pesticides and Aroclors only).

2.1.9 PreparationPlusCleanup Node

Each Analysis node under a SamplePlusMethod node must contain one PreparationPlusCleanup node. Each Analysis node under an Instrument QC node with a QCType equal to Florisil_Cartridge_Check or GPC_Calibration_Check must contain one PreparationPlusCleanup node.

2.1.10 Peak Node

Each Analyte node must contain one Peak node for Volatiles, Semivolatiles, and Pesticides (except Toxaphene), and at least three Peak nodes for Toxaphene and each Aroclor.

2.1.11 PeakComparison Node

Each Peak node for Volatiles and Semivolatiles must contain at least one PeakComparison node.

2.2 Detailed instructions for the content of each data element are provided in Tables 1 through 4. Table 1 provides instructions for the Volatiles and Trace Volatiles fractions, Table 2 for the Semivolatiles fraction, Table 3 for the Pesticides fraction, and Table 4 for the Aroclors fraction. The following is an explanation of the data fields contained in each table.

2.2.1 Node and Data Elements

This field reports each node in bold text, followed by its data elements. If an entire node is not required, then none of its data elements are listed.

2.2.2 Applicability

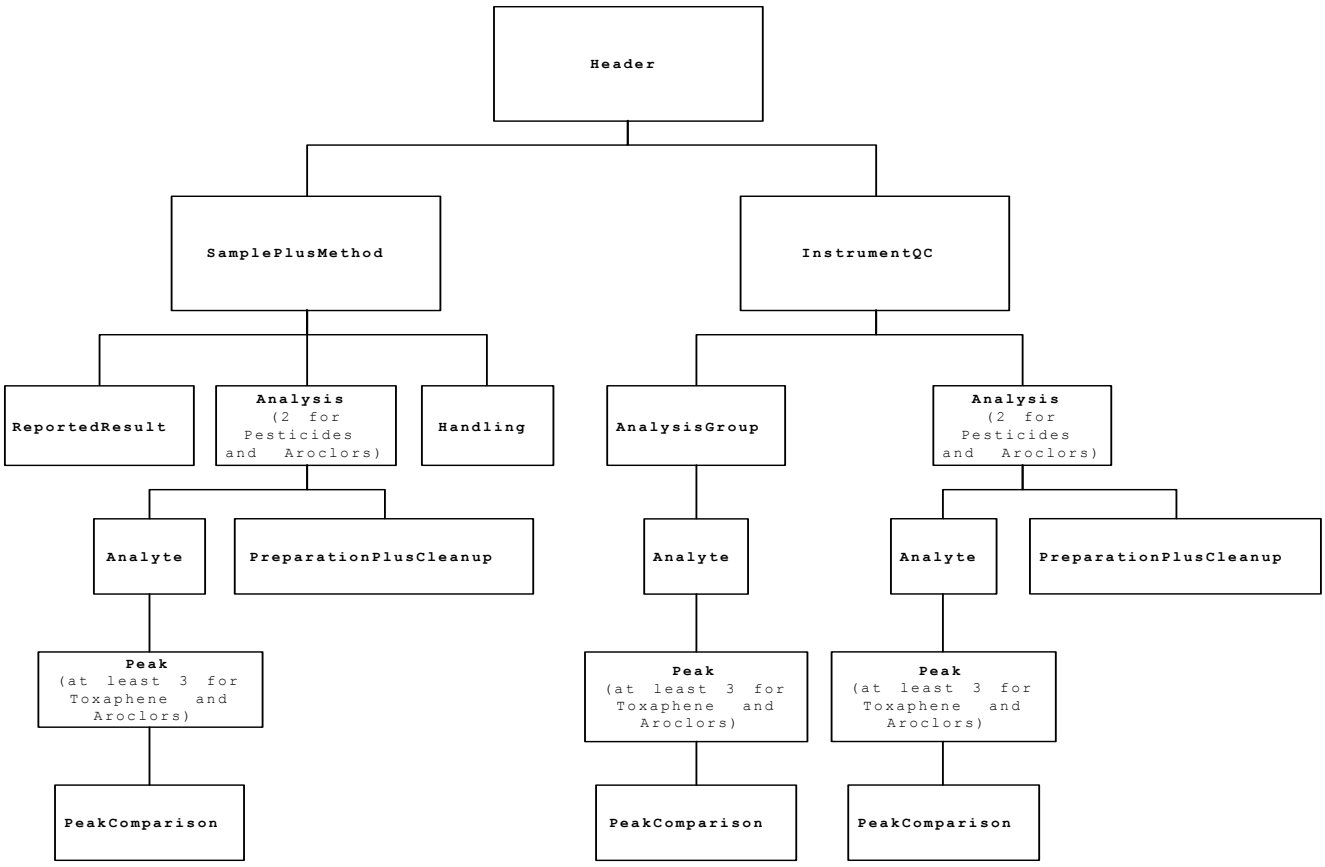
This field reports the samples, blanks, and standards for which each node and data element is required. An "X" in a column indicates that

the node or element is required. Sample refers to field samples, field blanks, and performance evaluation samples unless otherwise noted. Abbreviations used in this field are defined in Table 5.

2.2.3 Instructions

This field describes the required format and content of each data element. The content of each data element is specified as either literal (contained in quotes), or as a variable for which description and format is listed. Abbreviations used in this field are defined in Table 5.

Figure 1: Data Node Hierarchy



3.0 BATCHES

3.1 This implementation requires the use of the following batches from the Staged Electronic Data Deliverable (SEDD) Specification: 'LabReportingBatch'; 'RunBatch'; 'AnalysisBatch'; 'PreparationBatch'; 'CleanupBatch'; 'StorageBatch'.

3.1.1 The 'LabReportingBatch' links all samples reported in the same Sample Delivery Group (SDG). Report the SDG Number.

3.1.2 The 'RunBatch' links all analyses performed under the same initial calibration. All analyses performed under an initial calibration must have the same content for the 'RunBatch' element as the initial calibration from which their results are calculated.

3.1.3 The 'AnalysisBatch' and 'AnalysisBatchEnd' link all analyses performed within the same analytical sequence (12-hour period). All analyses performed within the same analytical sequence must have the same content for the 'AnalysisBatch' element as the tune or standard that began the analytical sequence, and the same content for the 'AnalysisBatchEnd' as the calibration standard that ends the analytical sequence.

3.1.4 The 'PreparationBatch' links all samples of the same matrix prepared at the same time by the same preparation method. All samples analyzed, including method blanks, storage and instrument blank (volatiles only), MS/MSD, and LCS (pesticide and Aroclor fractions only) that are prepared together must have the same content for the 'PreparationBatch' element.

3.1.5 The 'CleanupBatch' links all samples processed through a cleanup procedure at the same time [or between calibration checks for the Gel Permeation Chromatography (GPC) procedure]. Samples of the same matrix in a fraction are not required to have identical Cleanup batches [i.e., need not all be subjected to the same cleanup procedure(s)]. All samples analyzed, including method blanks, MS/MSD, and LCS (pesticide and Aroclor fractions only) that are cleaned up together must have the same content for the 'CleanupBatch' element.

3.1.6 The 'StorageBatch' links all samples stored together with a storage blank. All samples that are stored together must have the same content for the 'StorageBatch' element as the storage blank sample.

4.0 DELIVERABLE

4.1 Each fraction in a Sample Delivery Group (SDG) shall be submitted as a separate file. For reporting requirements, the fractions are "VOA_Trace"; "VOA_Low-Med"; "VOA_SIM"; "BNA"; "BNA_SIM"; "Pest"; and "Aroclor". For example, if SIM analysis is requested for BNA, then two separate files must be submitted and labeled as "BNA" and "BNA_SIM". All fractions within an SDG shall be submitted at the same time [i.e., the file for the second fraction in an SDG shall be submitted immediately after the file for the first fraction has been transmitted, etc.].

4.2 The laboratory will utilize a designated website (provided in their laboratory welcome package) to electronically submit their EDD to SMO. USEPA may approve alternative electronic means of file delivery. Written permission must be obtained from the USEPA Analytical Services Branch (ASB) prior to the use of any alternative means.

4.3 The laboratory must follow the delivery instructions in Exhibit B of this Statement of Work (SOW) and deliver their hardcopy and EDD to SMO concurrently. If one of these items are delivered on a later date, the Data Receipt Date (DRD) for the SDG will be the later of the two dates.

4.4 Information in the electronic deliverable must correspond to information submitted in the hardcopy raw data package and on QC summary forms, provided that any "raw" values reported (e.g., IS areas on Form VIIIs)are neither rounded on the Form or EDD. If information in the raw data or on the forms is changed, the information in the electronic deliverable shall be changed accordingly. An electronic deliverable containing the changed information for the SDG shall be resubmitted along with the hardcopy at no additional cost to the USEPA.

4.5 The format for the file name shall be Case number_SDG number_contract number_submission number_DTD used_Fraction.xml. For example, the first submission of the Trace VOA fraction from SDG number ABC12, Case number 12345, contract 68-W-0000 would be named 12345_ABC12_68-W-0000_1_ORGANICGENERAL_3_2_VOA_Trace.xml.

5.0 DOCUMENT TYPE DEFINITION (DTD)

5.1 Introduction

The deliverable will be validated against DTD ORGANICGENERAL_3_2. The deliverable must not contain any tags not included in the DTD and must conform to the hierarchical structure modeled in the DTD.

5.2 Organic General DTD

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ORGANICGENERAL_3_2.dtd 4/1/2004 Based on SEDD Specification Draft 5.1 -->
<!-- Acronym Description -->
<!-- Coeff - Coefficient -->
<!-- EDD - Electronic Data Deliverable -->
<!-- ID - Identity -->
<!-- Lab - Laboratory -->
<!-- QC - Quality Control -->
<!-- RPD - Relative Percent Difference -->
<!-- RRF - Relative Response Factor -->
<!-- RSD - Relative Standard Deviation -->
<!ELEMENT Header (
                ClientDataPackageID|
                ClientDataPackageName|
                ClientDataPackageVersion|
                EDDID|
                EDDVersion|
                EDDImplementationID|
                EDDImplementationVersion|
                GeneratingSystemID|
                GeneratingSystemVersion|
                LabDataPackageID|
                LabDataPackageName|
                LabDataPackageVersion|
                LabReportedDate|
                DateFormat|
                Comment|
                SamplePlusMethod|
                InstrumentQC
                        )*>
<!ELEMENT Analysis (
                AliquotAmount|
                AliquotAmountUnits|
                AnalysisBatch|
                AnalysisBatchEnd|
                AnalysisGroupID|
                AnalysisType|
                Analyst|
                AnalyzedAmount|
                AnalyzedAmountUnits|
                AnalyzedDate|
                BottleID|
                ClientAnalysisID|
                ClientMethodID|
                ClientMethodName|
                ClientMethodSource|
                Column|
                ColumnInternalDiameter|
                ColumnInternalDiameterUnits|
                ColumnLength|
                ColumnLengthUnits|
                Comment|
```

```
                ConfirmationAnalysisID|
                DetectorID|
                DetectorType|
                DilutionFactor|
                HeatedPurge|
                InjectionVolume|
                InjectionVolumeUnits|
                InstrumentID|
                LabAnalysisID|
                LabFileID|
                LabMethodID|
                LabMethodName|
                ProcedureID|
                ProcedureName|
                ResultBasis|
                RunBatch|
                PreparationPlusCleanup|
                Analyte
                        )*>
<!ELEMENT AnalysisGroup (
                AnalysisGroupID|
                AnalysisType|
                Comment|
                Analyte
                        )*>
<!ELEMENT Analyte (
                AmountAdded|
                AmountAddedUnits|
                AnalyteName|
                AnalyteNameContext|
                AnalyteType|
                CASRegistryNumber|
                ClientAnalyteID|
                Comment|
                ExpectedResult|
                ExpectedResultUnits|
                IntermediateResult|
                IntermediateResultUnits|
                LabAnalyteID|
                LabQualifiers|
                LotNumber|
                PeakID|
                PercentBreakdown|
                PercentBreakdownLimitHigh|
                PercentBreakdownLimitType|
                PercentDifference|
                PercentDifferenceLimitHigh|
                PercentDifferenceLimitLow|
                PercentDifferenceLimitType|
                PercentMatch|
                PercentRecovery|
                PercentRecoveryLimitHigh|
                PercentRecoveryLimitLow|
                PercentRecoveryLimitType|
                Result|
                ResultLimitHigh|
                ResultLimitLow|
                ResultLimitType|
                ResultType|
                ResultUnits|
                RPD|
                RPDLimitHigh|
```

```
                RPDLimitType|
                StandardConcentration|
                StandardConcentrationUnits|
                StandardID|
                StandardSource|
                TailingFactor|
                TailingFactorLimitHigh|
                TailingFactorLimitType|
                Peak
                        )*>
<!ELEMENT Handling (
                Analyst|
                BottleID|
                ClientMethodID|
                ClientMethodName|
                ClientMethodSource|
                Comment|
                HandledDate|
                HandlingBatch|
                HandlingType|
                InitialAmount|
                InitialAmountUnits|
                LabMethodID|
                LabMethodName|
                ProcedureID|
                ProcedureName|
                PercentMoisture|
                PercentSolids|
                SampleAmount|
                SampleAmountUnits
                        )*>
<!ELEMENT InstrumentQC (
                ClientInstrumentQCType|
                ClientMethodID|
                ClientMethodName|
                ClientMethodSource|
                Comment|
                LabInstrumentQCID|
                LabID|
                LabName|
                QCLinkage|
                QCType|
                AnalysisGroup|
                Analysis
                        )*>
<!ELEMENT Peak (
                CalibrationFactor|
                CalibrationFactorUnits|
                CalibrationType|
                Coeffa0|
                Coeffa1|
                Coeffa2|
                Coeffa3|
                CoeffOfDetermination|
                CoeffOfDeterminationLimitLow|
                CoeffOfDeterminationLimitType|
                Comment|
                CorrelationCoeff|
                CorrelationCoeffLimitLow|
                CorrelationCoeffLimitType|
                IntermediateResult|
                IntermediateResultUnits|
```

```
                LabQualifiers|
                ManualIntegration|
                MeanCalibrationFactor|
                MeanCalibrationFactorUnits|
                MeanRetentionTime|
                MeanRetentionTimeLimitHigh|
                MeanRetentionTimeLimitLow|
                MeanRetentionTimeLimitType|
                MeanRetentionTimeUnits|
                MeanRRF|
                MeanRRFLimitLow|
                MeanRRFLimitType|
                PeakID|
                PercentDifference|
                PercentDifferenceLimitHigh|
                PercentDifferenceLimitLow|
                PercentDifferenceLimitType|
                PercentRecovery|
                PercentRecoveryLimitHigh|
                PercentRecoveryLimitLow|
                PercentRecoveryLimitType|
                PercentRSD|
                PercentRSDLimitHigh|
                PercentRSDLimitLow|
                PercentRSDLimitType|
                Resolution|
                ResolutionLimitLow|
                ResolutionLimitType|
                ResolutionUnits|
                Response|
                ResponseLimitHigh|
                ResponseLimitLow|
                ResponseLimitType|
                ResponseUnits|
                Result|
                ResultLimitHigh|
                ResultLimitLow|
                ResultLimitType|
                ResultType|
                ResultUnits|
                RetentionTime|
                RetentionTimeLimitHigh|
                RetentionTimeLimitLow|
                RetentionTimeLimitType|
                RetentionTimeUnits|
                RRF|
                RRFLimitLow|
                RRFLimitType|
                WeightingFactor|
                PeakComparison
                              )*>
<!ELEMENT PeakComparison (
                AnalyteName|
                AnalyteNameContext|
                CASRegistryNumber|
                ClientAnalyteID|
                Comment|
                LabAnalyteID|
                PeakID|
                PercentRatio|
                PercentRatioLimitHigh|
                PercentRatioLimitLow|
```

```
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                        )*>
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```
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                QCType|
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                ServicesID|
                ShippingBatch|
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6.0 DATA ELEMENT INSTRUCTIONS TABLES

Table 1

Volatiles and Trace Volatiles Data Element Instructions

Node and Data Elements	Applicability Sample	MB	SB	IB	MS	MSD	Instructions
Header	X		X		X		
ClientDataPackageID	X		X		X		Report the Case Number.
ClientDataPackageName	X		X		X		Report the Contract Number.
ClientDataPackageVersion	X		X		X		Report "1", then increment with each resubmission.
EDDID	X		X		X		Report "SEDD".
EDDVersion	X		X		X		Report "Draft 5.1".
EDDImplementationID	X		X		X		Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X		X		X		Report "2" (This is the version of the DTD used).
GeneratingSystemID	X		X		X		Report name of generating software or vendor.
GeneratingSystemVersion	X		X		X		Report software version number.
LabDataPackageID	X		X		X		Report the Sample Delivery Group (SDG).
LabDataPackageName	X		X		X		Report "VOA_Trace", "VOA_Low_Med", "VOA_SIM" as applicable.
LabDataPackageVersion	X		X		X		Report "1", then increment with each resubmission.
LabReportedDate	X		X		X		Report the date this data was reported to the client.
DateFormat	X		X		X		Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment							Not required.
SamplePlusMethod	X		X		X		
Bottles							Not required.
BottleType							Not required.
ClientMethodID	X		X		X		Report "SOM01.X".
ClientMethodName							Not required.
ClientMethodSource	X		X		X		Report "USEPA_CLP".
ClientMethodType	X		X		X		Report "GCMS_Internal_Standard".
ClientSampleID	X		X		X		Report the EPA Sample Number.
CollectedDate	X				X		Report the date and time the sample was collected.
Comment							Not required.
Composite							Not required.
CoolerID							Not required.
CustodyID	X				X		Report the Traffic Report/Chain of Custody Form number.
EquipmentBatch							Not required.
LabContract	X		X		X		Report the Contract Number.
LabID	X		X		X		Report the Agency-assigned Lab Code.
LabName	X		X		X		Report the Lab Name.
LabReceiptDate	X				X		Report the date and time the sample was received.
LabReportingBatch	X		X		X		Links all samples analyzed to this deliverable. Report the SDG Number.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	SB	IB	MS	MSD	Instructions
LabSampleID	X		X		X		Report the Lab Sample ID as assigned by the lab.
MatrixID	X		X		X		Report "Water", "Soil", or "Sediment".
MatrixName							Not required.
MethodLevel	X		X		X		Report "Trace", "Low", or "Medium".
MethodBatch							Not required.
OriginalClientSampleID					X		Report the EPA Sample Number of the original sample this sample was derived from.
OriginalLabSampleID							Not required.
PercentMoisture	X		X		X		For Soil/Sediment samples only, report the percent moisture to at least two significant figures.
PercentSolids							Not required.
pH	X				X		For water samples only, report the pH as measured by the laboratory to +/-1 pH units.
Preservative	X				X		Report any chemical preservative used.
ProjectID	X		X		X		Report the Case Number.
ProjectName							Not required.
QCCategory			X		X		Report "Blank" for MB, SB, and IB; "Spike" for MS; "Spike_Duplicate" for MSD.
QCLinkage			X		X		Report "LabReportingBatch" for MS/MSD; "AnalysisBatch" for MB; or "StorageBatch" for SB.
QCType	X		X		X		Report "Method_Blank" for MB; "Storage_Blank" for SB; "Method_Instrument_Blank" for IB; "Matrix_Spike" for MS; "Matrix_Spike_Duplicate" for MSD; "Field_Sample" for field samples; "Field_Blank" for field, equipment, rinse, trip, or other blanks; or "PT_Sample" for Performance Evaluation samples.
SamplingBatch							Not required.
ServicesID	X				X		Report the Modification Reference Number, if applicable.
ShippingBatch							Not required.
SiteID							Not required.
SiteName							Not required.
StorageBatch	X		X		X		Links all samples stored together with the Storage Blank. Report the Lab File ID of the Storage Blank. Not required for MB or IB.
Temperature	X				X		Report the temperature as measured by the laboratory upon receipt to +/- 1°C.
TemperatureUnits	X				X		Report "C".
InstrumentQC							Not required.
Analysis	X		X		X		
AliquotAmount							Not required.
AliquotAmountUnits							Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability					Instructions
	Sample	MB	SB	IB	MS MSD	
AnalysisBatch	X		X		X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the standard (Tune or CCV) that starts this sequence.
AnalysisBatchEnd	X		X		X	Links this analysis to the end of a 12-hour period. Report the Lab File ID of the CCV that ends this sequence.
AnalysisGroupID						Not required.
AnalysisType	X		X		X	Report "Initial", "Dilution-01", "Reanalysis-01", or "Reinjection-01". Then increment as necessary.
Analyst	X		X		X	Report Analyst's initials.
AnalyzedAmount	X		X		X	Report the Soil Aliquot Volume (for Medium Soils) in microliters.
AnalyzedAmountUnits	X		X		X	Report "uL".
AnalyzedDate	X		X		X	Report the date and time the sample was analyzed.
BottleID						Not required.
ClientAnalysisID	X		X		X	Report the EPA Sample Number.
ClientMethodID	X		X		X	Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource	X		X		X	Report "USEPA_CLP".
Column	X		X		X	Report the GC Column used.
ColumnInternalDiameter	X		X		X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X		X		X	Report "mm".
ColumnLength	X		X		X	Report the Column Length in meters.
ColumnLengthUnits	X		X		X	Report "m".
Comment						Not required.
ConfirmationAnalysisID						Not required.
DetectorID						Not required.
DetectorType						Not required.
DilutionFactor	X		X		X	Report the Dilution Factor used to +/- 0.1.
HeatedPurge	X		X		X	Report "Yes" if a heated purge was used; otherwise report "No".
InjectionVolume	X		X		X	Report the Purge Volume used in milliliters to at least two significant figures.
InjectionVolumeUnits	X		X		X	Report "mL".
InstrumentID	X		X		X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X		X		X	Report the Lab File ID.
LabFileID	X		X		X	Report the Lab File ID.
LabMethodID						Not required.
LabMethodName						Not required.
ProcedureID						Not required.
ProcedureName						Not required.
ResultBasis	X		X		X	Report "Dry" for Soil/Sediment samples. Report "Total" or "Filtered" for water samples, as applicable.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	SB	IB	MS	MSD	Instructions
RunBatch	X		X		X		Links this analysis to an initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that started the ICAL sequence.
AnalysisGroup							Not required.
Handling							Not required.
ReportedResult	X		X		X		
AnalysisGroupID							Not required.
AnalyteName	X		X		X		Report analytes as they appear in the SOW, or as identified for TICs. Report unknown TICs as "Unknown-01", then increment with each TIC.
AnalyteNameContext							Not required.
AnalyteType	X		X		X		Report "Target" for all target compounds, "Spike" for all target compounds designated as spike compounds for MS/MSD analysis, and "TIC" for all TICs.
CASRegistryNumber	X		X		X		Report CAS Numbers for targets as they appear in the SOW, and for TICs if known.
ClientAnalyteID	X		X		X		Report CAS Number. For TICs with no CAS Number, report the TIC name or as "Unknown-01", then increment with each TIC.
Comment							Not required.
DetectionLimit	X		X		X		For target compounds, report the current Method Detection Limit determined by the lab.
DetectionLimitType	X		X		X		Report "MDL".
DetectionLimitUnits	X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ExpectedResult					X		Report the theoretical final calculated concentration for the spiked analytes.
ExpectedResultUnits					X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
LabAnalysisID	X		X		X		Report the Lab File ID from the analysis this reported result was derived from.
LabAnalyteID							Not required.
LabQualifiers	X		X		X		Report up to five flags as specified in the SOW (U, J, N, B, E, D, X, Y, Z).
PeakID							Not required.
PercentDifference							Not required.
PercentDifferenceLimitHigh							Not required.
PercentDifferenceLimitLow							Not required.
PercentDifferenceLimitType							Not required.
PercentRecovery					X		Report the Percent Recovery to +/- 1%.
PercentRecoveryLimitHigh					X		Report the upper limit for the Percent Recovery to +/- 1%.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	SB	IB	MS	MSD	Instructions
PercentRecoveryLimitLow					X		Report the lower limit for the Percent Recovery to +/- 1%.
PercentRecoveryLimitType					X		Report "Method".
QuantitationLimit	X		X		X		For target compounds, report the adjusted CRQL.
QuantitationLimitType	X		X		X		Report "CRQL".
QuantitationLimitUnits	X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ReportingLimit	X		X		X		For target compounds, report the adjusted CRQL.
ReportingLimitType	X		X		X		Report "CRQL".
ReportingLimitUnits	X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
Result	X		X		X		Report the final calculated concentration to at least two significant figures. Leave blank if analyte is not detected.
ResultLimitHigh							Not required.
ResultLimitLow							Not required.
ResultLimitType							Not required.
ResultType	X		X		X		Report "=" for all reported Result values.
ResultUnits	X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
RetentionTime	X		X				Report Retention Times in decimal minutes for all TICs.
RetentionTimeUnits	X		X				Report "Minutes".
RPD					X		Report the RPD to +/- 1%.
RPDLimitHigh					X		Report the upper limit for the RPD to +/- 1%.
RPDLimitType					X		Report "Method".
PreparationPlusCleanup	X		X		X		
AliquotAmount	X		X		X		Report the sample amount in grams to at least three significant figures for Soil/Sediment.
AliquotAmountUnits	X		X		X		Report "g".
Analyst							Not required.
BottleID							Not required.
CleanedUpDate							Not required.
CleanupBatch							Not required.
CleanupType							Not required.
ClientMethodID	X		X		X		Report "SOM01.X".
ClientMethodName							Not required.
ClientMethodSource	X		X		X		Report "USEPA_CLP".
Comment							Not required.
FinalAmount							Not required.
FinalAmountUnits							Not required.
InitialAmount	X		X		X		Report the Soil Extract Volume in microliters to at least two significant figures (for Medium Soils).
InitialAmountUnits	X		X		X		Report "uL".
LabMethodID							Not required.
LabMethodName							Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	SB	IB	MS	MSD	Instructions
LotNumber							Not required.
PreparationBatch	X		X		X		Links all samples that were prepared together. Report the Lab File ID of the associated Method Blank.
PreparationPlusCleanupType	X		X		X		Report "Preparation" or "Cleanup" as applicable.
PreparationType							Not required.
PreparedDate	X		X		X		Report the date and time the sample was extracted (medium soils).
ProcedureID							Not required.
ProcedureName							Not required.
Analyte	X		X		X		
AmountAdded	X		X		X		Report the volume of internal standard, DMC, or MS/MSD spiking solution added to the sample.
AmountAddedUnits	X		X		X		Report the volume units for the Amount Added.
AnalyteName	X		X		X		Report analytes as they appear in the SOW or as identified for TICs. Report unknown TICs as "Unknown-01", then increment with each TIC.
AnalyteNameContext							Not required.
AnalyteType	X		X		X		Report "Surrogate" for DMCs; "Internal_Standard" for internal standards; "Target" for all target compounds; "Spike" for all target compounds designated as spike compounds for MS/MSD analysis; or "TIC" for all TICs.
CASRegistryNumber	X		X		X		Report CAS Numbers as they appear in the SOW, and for TICs if known.
ClientAnalyteID	X		X		X		Report CAS Number. For TICs with no CAS Number, report TIC name or as "Unknown-01", then increment with each TIC.
Comment							Not required.
ExpectedResult	X		X		X		Report the theoretical final calculated concentration for the DMCs. For internal standards, report the final amount added in nanograms.
ExpectedResultUnits	X		X		X		For DMCs, report "ug/kg" for Soil/Sediment and "ug/L" for Water. For internal standards, report "ng".
IntermediateResult	X		X		X		Report the on-column amount in nanograms from the raw data. Leave blank if not detected.
IntermediateResultUnits	X		X		X		Report "ng".
LabAnalyteID							Not required.
LabQualifiers	X		X		X		Report up to five flags as specified in the SOW (U, J, N, B, E, D, X, Y, Z).
LotNumber	X		X		X		Report the vendor/manufacturer assigned lot number for this standard (DMCs, internal standards, and MS/MSD spiking compounds only).
PeakID							Not required.
PercentBreakdown							Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	SB	IB	MS	MSD	Instructions
PercentBreakdownLimitHigh							Not required.
PercentBreakdownLimitType							Not required.
PercentDifference							Not required.
PercentDifferenceLimitHigh							Not required.
PercentDifferenceLimitLow							Not required.
PercentDifferenceLimitType							Not required.
PercentMatch	X		X				Report the percent match for TICs only.
PercentRecovery	X		X			X	Report the final calculated Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitHigh	X		X			X	Report the upper limit for the Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitLow	X		X			X	Report the lower limit for the Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitType	X		X			X	Report "Method".
Result	X		X			X	Report the final calculated concentration or amount to at least two significant figures. Leave blank if compound is not detected.
ResultLimitHigh							Not required.
ResultLimitLow							Not required.
ResultLimitType							Not required.
ResultType	X		X			X	Report "=" for all reported Result values.
ResultUnits	X		X			X	For targets, TICs, DMCs and spikes, report "ug/kg" for Soil/Sediment or "ug/L" for Water.
RPD							Not required.
RPDLimitHigh							Not required.
RPDLimitType							Not required.
StandardConcentration	X		X			X	Report the concentration of the internal standard, DMC, or MS/MSD spiking solution added to the sample.
StandardConcentrationUnits	X		X			X	Report the units for the Standard Concentration.
StandardID	X		X			X	Report the lab assigned identifier for this standard.
StandardSource	X		X			X	Report the vendor/manufacturer for this standard.
TailingFactor							Not required.
TailingFactorLimitHigh							Not required.
TailingFactorLimitType							Not required.
Peak	X		X			X	
CalibrationFactor							Not required.
CalibrationFactorUnits							Not required.
CalibrationType							Not required.
Coeffa0							Not required.
Coeffa1							Not required.
Coeffa2							Not required.
Coeffa3							Not required.
CoeffOfDetermination							Not required.
CoeffOfDeterminationLimitLow							Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	SB	IB	MS	MSD	Instructions
CoeffOfDeterminationLimitType							Not required.
Comment							Not required.
CorrelationCoeff							Not required.
CorrelationCoeffLimitLow							Not required.
CorrelationCoeffLimitType							Not required.
IntermediateResult	X		X		X		Report the on-column amount in nanograms from the raw data. Leave blank if compound is not detected.
IntermediateResultUnits	X		X		X		Report "ng".
LabQualifiers							Not required.
ManualIntegration	X		X		X		Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor							Not required.
MeanCalibrationFactorUnits							Not required.
MeanRetentionTime							Not required.
MeanRetentionTimeLimitHigh							Not required.
MeanRetentionTimeLimitLow							Not required.
MeanRetentionTimeLimitType							Not required.
MeanRetentionTimeUnits							Not required.
MeanRRF							Not required.
MeanRRFLimitLow							Not required.
MeanRRFLimitType							Not required.
PeakID	X		X		X		Report the primary quantitation ion used or "Total" if all ions were used.
PercentDifference							Not required.
PercentDifferenceLimitHigh							Not required.
PercentDifferenceLimitLow							Not required.
PercentDifferenceLimitType							Not required.
PercentRecovery							Not required.
PercentRecoveryLimitHigh							Not required.
PercentRecoveryLimitLow							Not required.
PercentRecoveryLimitType							Not required.
PercentRSD							Not required.
PercentRSDLimitHigh							Not required.
PercentRSDLimitLow							Not required.
PercentRSDLimitType							Not required.
Resolution							Not required.
ResolutionLimitLow							Not required.
ResolutionLimitType							Not required.
ResolutionUnits							Not required.
Response	X		X		X		Report the actual Peak Area from the raw data.
ResponseLimitHigh	X		X		X		Report the upper limit for this response for the internal standards only.
ResponseLimitLow	X		X		X		Report the lower limit for this response for the internal standards only.
ResponseLimitType	X		X		X		Report "Method".
ResponseUnits	X		X		X		Report "Peak_Area".
Result							Not required.
ResultLimitHigh							Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	SB	IB	MS	MSD	Instructions
ResultLimitLow							Not required.
ResultLimitType							Not required.
ResultType							Not required.
ResultUnits							Not required.
RetentionTime	X		X		X		Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X		X		X		Report the upper limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitLow	X		X		X		Report the lower limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitType	X		X		X		Report "Method".
RetentionTimeUnits	X		X		X		Report "Minutes".
RRF							Not required.
RRFLimitLow							Not required.
RRFLimitType							Not required.
WeightingFactor							Not required.
PeakComparison	X		X		X		
AnalyteName	X		X		X		Report the name of the associated internal standard as it appears in the SOW.
AnalyteNameContext							Not required.
CASRegistryNumber	X		X		X		Report the CAS Number of the associated internal standard.
ClientAnalyteID	X		X		X		Report the CAS Number of the associated internal standard.
Comment							Not required.
LabAnalyteID							Not required.
PeakID	X		X		X		Report the primary quantitation ion used for the internal standard.
PercentRatio							Not required.
PercentRatioLimitHigh							Not required.
PercentRatioLimitLow							Not required.
PercentRatioLimitType							Not required.

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
Header	X	X	X	
ClientDataPackageID	X	X	X	Report the Case Number.
ClientDataPackageName	X	X	X	Report the Contract Number.
ClientDataPackageVersion	X	X	X	Report "1", then increment with each resubmission.
EDDID	X	X	X	Report "SEDD".
EDDVersion	X	X	X	Report "Draft 5.1".
EDDImplementationID	X	X	X	Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	X	Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	Report software version number.
LabDataPackageID	X	X	X	Report the Sample Delivery Group (SDG).

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
LabDataPackageName	X	X	X	Report "VOA_Trace", "VOA_Low-Med", or "VOA_SIM" as appropriate.
LabDataPackageVersion	X	X	X	Report "1", then increment with each resubmission.
LabReportedDate	X	X	X	Report the date this data was reported to the client.
DateFormat	X	X	X	Report "MMDDYYYY HH:mm:SS". All dates and times reported in this EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment				Not required.
SamplePlusMethod				Not required.
InstrumentQC	X	X	X	
ClientInstrumentQCType				Not required.
ClientMethodID	X	X	X	Report "SOM01.X".
ClientMethodName				Not required.
ClientMethodSource	X	X	X	Report "USEPA_CLP".
Comment				Not required.
LabInstrumentQCID	X	X	X	Report the EPA Sample Number. For ICAL, report the EPA Sample Number of the first standard.
LabID	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	Report the Lab Name.
QCLinkage	X	X	X	Report "AnalysisBatch" for Tune and CCV, "RunBatch" for ICAL.
QCType	X	X	X	Report "Instrument_Performance_Check", "Initial_Calibration", or "Continuing_Calibration_Verification".
Analysis	X	X	X	
AliquotAmount				Not required.
AliquotAmountUnits				Not required.
AnalysisBatch	X	X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the standard (Tune or CCV) that starts this sequence. For the standard that starts the 12-hour period, enter the Lab File ID of the standard itself.
AnalysisBatchEnd			X	Links this analysis to the end of a 12-hour period. Report the Lab File ID of the CCV that ends this sequence. For the closing CCV, report the Lab File ID of the CCV itself.
AnalysisGroupID		X		This links a group of analyses together that are used for the initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that starts the ICAL sequence.
AnalysisType	X	X	X	For Tune, report "Initial". For ICAL/CCV report the calibration level used (e.g., "RRF-20").
Analyst	X	X	X	Report the Analyst's initials.
AnalyzedAmount				Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
AnalyzedAmountUnits				Not required.
AnalyzedDate	X	X	X	Report the date and time the sample was analyzed.
BottleID				Not required.
ClientAnalysisID	X	X	X	Report the EPA Sample Number.
ClientMethodID	X	X	X	Report "SOM01.X".
ClientMethodName				Not required.
ClientMethodSource	X	X	X	Report "USEPA_CLP".
Column	X	X	X	Report the GC Column used.
ColumnInternalDiameter	X	X	X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X	X	X	Report "mm".
ColumnLength	X	X	X	Report the GC Column Length in meters.
ColumnLengthUnits	X	X	X	Report "m".
Comment				Not required.
ConfirmationAnalysisID				Not required.
DetectorID				Not required.
DetectorType				Not required.
DilutionFactor				Not required.
HeatedPurge	X	X	X	Report "Yes" if a heated purge was used; otherwise report "No".
InjectionVolume	X	X	X	Report the Purge Volume in milliliters.
InjectionVolumeUnits	X	X	X	Report "mL".
InstrumentID	X	X	X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	Report the Lab File ID.
LabFileID	X	X	X	Report the Lab File ID.
LabMethodID				Not required.
LabMethodName				Not required.
ProcedureID				Not required.
ProcedureName				Not required.
ResultBasis				Not required.
RunBatch	X	X	X	Links this analysis to an initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that started the ICAL sequence.
AnalysisGroup		X		
AnalysisGroupID		X		This links a group of analyses together that are used for the initial calibration. Report the Lab File ID of the standard that starts this ICAL sequence.
AnalysisType		X		Report "Initial_Calibration".
Comment				Not required.
Handling				Not required.
ReportedResult				Not required.
PreparationPlusCleanup				Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
Analyte	X	X	X	
AmountAdded	X	X	X	Report the volume of the standard used.
AmountAddedUnits	X	X	X	Report the volume units for the Amount Added.
AnalyteName	X	X	X	Report analytes as they appear in the SOW.
AnalyteNameContext				Not required.
AnalyteType	X	X	X	Report "Target" for all target compounds; "Surrogate" for DMCs; or "Internal_Standard" as appropriate.
CASRegistryNumber	X	X	X	Report CAS Number as they appear in the SOW.
ClientAnalyteID	X	X	X	Report CAS Number.
Comment				Not required.
ExpectedResult		X	X	For internal standards, report the final amount added in nanograms.
ExpectedResultUnits		X	X	For internal standards, report "ng".
IntermediateResult		X	X	Report the on-column in nanograms amount from the raw data.
IntermediateResultUnits		X	X	Report "ng".
LabAnalyteID				Not required.
LabQualifiers				Not required.
LotNumber	X	X	X	Report the vendor/manufacturer assigned lot number for this standard.
PeakID				Not required.
PercentBreakdown				Not required.
PercentBreakdownLimitHigh				Not required.
PercentBreakdownLimitType				Not required.
PercentDifference				Not required.
PercentDifferenceLimitHigh				Not required.
PercentDifferenceLimitLow				Not required.
PercentDifferenceLimitType				Not required.
PercentMatch				Not required.
PercentRecovery				Not required.
PercentRecoveryLimitHigh				Not required.
PercentRecoveryLimitLow				Not required.
PercentRecoveryLimitType				Not required.
Result				Not required.
ResultLimitHigh				Not required.
ResultLimitLow				Not required.
ResultLimitType				Not required.
ResultType				Not required.
ResultUnits				Not required.
RPD				Not required.
RPDLimitHigh				Not required.
RPDLimitType				Not required.
StandardConcentration	X	X	X	Report the concentration of the standard used.
StandardConcentrationUnits	X	X	X	Report the units for the Standard Concentration.
StandardID	X	X	X	Report the lab assigned identifier for this standard.
StandardSource	X	X	X	Report the vendor/manufacturer for this standard.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
TailingFactor				Not required.
TailingFactorLimitHigh				Not required.
TailingFactorLimitType				Not required.
Peak	X	X	X	
CalibrationFactor				Not required.
CalibrationFactorUnits				Not required.
CalibrationType		X		Report "Average_Response_Factor".
Coeffa0				Not required.
Coeffa1				Not required.
Coeffa2				Not required.
Coeffa3				Not required.
CoeffOfDetermination				Not required.
CoeffOfDeterminationLimitLow				Not required.
CoeffOfDeterminationLimitType				Not required.
Comment				Not required.
CorrelationCoeff				Not required.
CorrelationCoeffLimitLow				Not required.
CorrelationCoeffLimitType				Not required.
IntermediateResult		X	X	Report the on-column amount in nanograms from the raw data.
IntermediateResultUnit		X	X	Report "ng".
LabQualifiers				Not required.
ManualIntegration	X	X	X	Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor				Not required.
MeanCalibrationFactorUnits				Not required.
MeanRetentionTime				Not required.
MeanRetentionTimeLimitHigh				Not required.
MeanRetentionTimeLimitLow				Not required.
MeanRetentionTimeLimitType				Not required.
MeanRetentionTimeUnits				Not required.
MeanRRF		X		Report the calculated mean RRF to +/- 0.001 under the AnalysisGroup node only.
MeanRRFLimitLow				Not required.
MeanRRFLimitType				Not required.
PeakID	X	X	X	Report the primary quantitation ion used or "Total" if all ions were used.
PercentDifference			X	Report the calculated Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitHigh			X	Report the upper limit for the Percent Difference to +/- 0.1%.
PercentDifferenceLimitLow			X	Report the lower limit for the Percent Difference to +/- 0.1%.
PercentDifferenceLimitType			X	Report "Method".
PercentRecovery				Not required.
PercentRecoveryLimitHigh				Not required.
PercentRecoveryLimitLow				Not required.
PercentRecoveryLimitType				Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
PercentRSD		X		Report the calculated Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.
PercentRSDLimitHigh		X		Report the upper limit for the %RSD to +/- 0.1%.
PercentRSDLimitLow				Not required.
PercentRSDLimitType		X		Report "Method".
Resolution				Not required.
ResolutionLimitLow				Not required.
ResolutionLimitType				Not required.
ResolutionUnits				Not required.
Response	X	X	X	Report the actual Peak Area from the raw data.
ResponseLimitHigh		X	X	Report the upper limit for this response for the internal standards only.
ResponseLimitLow		X	X	Report the lower limit for this response for the internal standards only.
ResponseLimitType		X	X	Report "Method".
ResponseUnits	X	X	X	Report "Peak_Area".
Result				Not required.
ResultLimitHigh				Not required.
ResultLimitLow				Not required.
ResultLimitType				Not required.
ResultType				Not required.
ResultUnits				Not required.
RetentionTime	X	X	X	Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh		X	X	Report the upper limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitLow		X	X	Report the lower limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitType		X	X	Report "Method".
RetentionTimeUnits	X	X	X	Report "Minutes".
RRF		X	X	Report the calculated RRF to +/- 0.001. Leave blank if this analyte is not to be included in the initial calibration curve.
RRFLimitLow		X	X	Report the lower limit for the RRF to +/- 0.001.
RRFLimitType		X	X	Report "Method".
WeightingFactor				Not required.
PeakComparison	X	X	X	
AnalyteName	X	X	X	Report tune compound or the associated internal standard as they appear in the SOW.
AnalyteNameContext				Not required.
CASRegistryNumber	X	X	X	Report the CAS Number of the tune compound or associated internal standard.
ClientAnalyteID	X	X	X	Report the CAS Number of the tune compound or associated internal standard.
Comment				Not required.
LabAnalyteID				Not required.

Table 1

Volatiles and Trace Volatiles Data Element Instructions (Con’t)

Node and Data Elements	Applicability			Instructions
	Tune	ICAL	CCV	
PeakID	X	X	X	For tunes, report the mass being compared to the monitored mass. For internal standards, report the primary quantitation ion.
PercentRatio	X			Report the Percent Ratio (%Relative Abundance or %Mass) to +/- 0.01%.
PercentRatioLimitHigh	X			Report the upper limit for the Percent Ratio to +/- 0.01%.
PercentRatioLimitLow	X			Report the lower limit for the Percent Ratio to +/- 0.01%.
PercentRatioLimitType	X			Report "Method".

Table 2

Semivolatiles Data Element Instructions

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
Header	X	X	X		
ClientDataPackageID	X	X	X		Report the Case Number.
ClientDataPackageName	X	X	X		Report the Contract Number.
ClientDataPackageVersion	X	X	X		Report "1", then increment with each resubmission.
EDDID	X	X	X		Report "SEDD".
EDDVersion	X	X	X		Report "Draft 5.1".
EDDImplementationID	X	X	X		Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	X		Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	X		Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X		Report software version number.
LabDataPackageID	X	X	X		Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X		Report "BNA" or "BNA_SIM".
LabDataPackageVersion	X	X	X		Report "1", then increment with each resubmission.
LabReportedDate	X	X	X		Report the date this data was reported to the client.
DateFormat	X	X	X		Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment					Not required.
SamplePlusMethod	X	X	X		
Bottles					Not required.
BottleType					Not required.
ClientMethodID	X	X	X		Report "SOM01.X".
ClientMethodName					Not required.
ClientMethodSource	X	X	X		Report "USEPA_CLP".
ClientMethodType	X	X	X		Report "GCMS_Internal_Standard".
ClientSampleID	X	X	X		Report the EPA Sample Number.
CollectedDate	X		X		Report the date and time the sample was collected.
Comment					Not required.
Composite					Not required.
CoolerID					Not required.
CustodyID	X		X		Report the Traffic Report/Chain of Custody Form Number.
EquipmentBatch					Not required.
LabContract	X	X	X		Report the Contract Number.
LabID	X	X	X		Report the Agency-assigned Lab Code.
LabName	X	X	X		Report the Lab Name.
LabReceiptDate	X		X		Report the date and time the sample was received.
LabReportingBatch	X	X	X		Links all samples analyzed to this deliverable. Report the SDG Number.
LabSampleID	X	X	X		Report the Lab Sample ID as assigned by the lab.
MatrixID	X	X	X		Report "Water", "Soil", or "Sediment".

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS MSD	Instructions
MatrixName				Not required.
MethodLevel	X	X	X	Report "Low" or "Medium".
MethodBatch				Not required.
OriginalClientSampleID			X	Report the EPA Sample Number of the original sample this sample was derived from.
OriginalLabSampleID				Not required.
PercentMoisture	X	X	X	For Soil/Sediment samples only, report the percent moisture to at least two significant figures.
PercentSolids				Not required.
pH	X		X	Report the pH as measured by the laboratory upon receipt to +/- 0.1 pH units.
Preservative	X		X	Report any chemical preservative used.
ProjectID	X	X	X	Report the Case Number.
ProjectName				Not required.
QCCategory		X	X	Report "Blank" for MB, "Spike" for MS, and "Spike_Duplicate" for MSD.
QCLinkage		X	X	Report "LabReportingBatch" for MS/MSD; or "PreparationBatch" for MB.
QCType	X	X	X	Report "Method_Blank" for MB; "Matrix_Spike" for MS; "Matrix_Spike_Duplicate" for MSD; "Field_Sample" for field samples; "Field_Blank" for field, equipment, rinse, trip, or other blanks; or "PT_Sample" for Performance Evaluation samples.
SamplingBatch				Not required.
ServicesID	X		X	Report the Modification Reference Number, if applicable.
ShippingBatch				Not required.
SiteID				Not required.
SiteName				Not required.
StorageBatch				Not required.
Temperature	X		X	Report the temperature as measured by the laboratory upon receipt to +/- 1°C.
TemperatureUnits	X		X	Report "C".
InstrumentQC				Not required.
Analysis	X	X	X	
AliquotAmount				Not required.
AliquotAmountUnits				Not required.
AnalysisBatch	X	X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the standard (Tune or CCV) that starts this sequence.
AnalysisBatchEnd	X	X	X	Links this analysis to the end of a 12-hour period. Report the Lab File ID of the CCV that ends this sequence.
AnalysisGroupID				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
AnalysisType	X	X	X		Report "Initial", "Dilution-01", "Reanalysis-01", or "Reinjection-01". Then increment as necessary.
Analyst	X	X	X		Report Analyst's initials.
AnalyzedAmount					Not required.
AnalyzedAmountUnits					Not required.
AnalyzedDate	X	X	X		Report the date and time the sample was analyzed.
BottleID					Not required.
ClientAnalysisID	X	X	X		Report the EPA Sample Number.
ClientMethodID	X	X	X		Report "SOM01.X".
ClientMethodName					Not required.
ClientMethodSource	X	X	X		Report "USEPA_CLP".
Column	X	X	X		Report the GC Column used.
ColumnInternalDiameter	X	X	X		Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X	X	X		Report "mm".
ColumnLength	X	X	X		Report the GC Column Length in meters.
ColumnLengthUnits	X	X	X		Report "m".
Comment					Not required.
ConfirmationAnalysisID					Not required.
DetectorID					Not required.
DetectorType					Not required.
DilutionFactor	X	X	X		Report the Dilution Factor used to +/- 0.1.
HeatedPurge					Not required.
InjectionVolume	X	X	X		Report the Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X	X	X		Report "uL".
InstrumentID	X	X	X		Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X		Report the Lab File ID.
LabFileID	X	X	X		Report the Lab File ID.
LabMethodID					Not required.
LabMethodName					Not required.
ProcedureID					Not required.
ProcedureName					Not required.
ResultBasis	X	X	X		Report "Dry" for Soil/Sediment samples. Report "Total" or "Filtered" for water samples, as applicable.
RunBatch	X	X	X		Links this analysis to an initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that started the ICAL sequence.
AnalysisGroup					Not required.
Handling	X	X	X		
Analyst					Not required.
BottleID					Not required.
ClientMethodID	X	X	X		Report "SOM01.X".
ClientMethodName					Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
ClientMethodSource	X	X	X		Report "USEPA_CLP".
Comment					Not required.
HandledDate	X	X	X		Report the date and time the sample was handled.
HandlingBatch					Not required.
HandlingType	X		X		Report "Decanted" if water was decanted from Soil samples, otherwise report "Not_Decanted".
InitialAmount					Not required.
InitialAmountUnits					Not required.
LabMethodID					Not required.
LabMethodName					Not required.
ProcedureID					Not required.
ProcedureName					Not required.
PercentMoisture					Not required.
PercentSolids					Not required.
SampleAmount					Not required.
SampleAmountUnits					Not required.
ReportedResult	X	X	X		
AnalysisGroupID					Not required.
AnalyteName	X	X	X		Report analytes as they appear in the SOW, or as identified for TICs. Report unknown TICs as "Unknown-01", then increment with each TIC.
AnalyteNameContext					Not required.
AnalyteType	X	X	X		Report "Target" for all target compounds, "Spike" for all target compounds designated as spike compounds for MS/MSD analysis, and "TIC" for all TICs.
CASRegistryNumber	X	X	X		Report CAS Numbers as they appear in the SOW, and for TICs if known.
ClientAnalyteID	X	X	X		Report CAS Number. For TICs with no CAS Number, report TIC name or as "Unknown-01", then increment with each TIC.
Comment					Not required.
DetectionLimit	X	X	X		For target compounds, report the Method Detection Limit determined by the lab.
DetectionLimitType	X	X	X		Report "MDL".
DetectionLimitUnits	X	X	X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ExpectedResult			X		Report the theoretical final calculated concentration for the spiked analytes.
ExpectedResultUnits			X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
LabAnalysisID	X	X	X		Report the Lab File ID from the analysis this reported result was derived from.
LabAnalyteID					Not required.
LabQualifiers	X	X	X		Report up to five flags as specified in the SOW (U, J, N, B, E, D, A, X, Y, Z).
PeakID					Not required.
PercentDifference					Not required.
PercentDifferenceLimitHigh					Not required.
PercentDifferenceLimitLow					Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS MSD	Instructions
PercentDifferenceLimitType				Not required.
PercentRecovery			X	Report the Percent Recovery to +/-1%.
PercentRecoveryLimitHigh			X	Report the upper limit for the Percent Recovery to +/- 1%.
PercentRecoveryLimitLow			X	Report the lower limit for the Percent Recovery to +/- 1%.
PercentRecoveryLimitType			X	Report "Method".
QuantitationLimit	X	X	X	For target compounds, report the adjusted CRQL.
QuantitationLimitType	X	X	X	Report "CRQL".
QuantitationLimitUnits	X	X	X	Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ReportingLimit	X	X	X	For target compounds, report the adjusted CRQL.
ReportingLimitType	X	X	X	Report "CRQL".
ReportingLimitUnits	X	X	X	Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
Result	X	X	X	Report the final calculated concentration to at least two significant figures. Leave blank if compound is not detected.
ResultLimitHigh				Not required.
ResultLimitLow				Not required.
ResultLimitType				Not required.
ResultType	X	X	X	Report "=" for all reported Result values.
ResultUnits	X	X	X	Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
RetentionTime	X	X		Report Retention Times in decimal minutes for all TICs.
RetentionTimeUnits	X	X		Report "Minutes".
RPD			X	Report the RPD to +/- 1%.
RPDLimitHigh			X	Report the upper limit for the RPD to +/- 1%.
RPDLimitType			X	Report "Method".
PreparationPlusCleanup	X	X	X	
AliquotAmount	X	X	X	Report the sample amount used for this analysis to at least three significant figures.
AliquotAmountUnits	X	X	X	Report "g" for Soil/Sediment and "mL" for Water.
Analyst				Not required.
BottleID				Not required.
CleanedUpDate	X	X	X	Report the date and time the sample was cleaned up.
CleanupBatch	X	X	X	Links all samples that were cleaned up together. Report the Lab File ID of the associated blank or other unique identifier.
CleanupType	X	X	X	Report "GPC", "Silica_Gel", or "Alumina" as applicable.
ClientMethodID	X	X	X	Report "SOM01.X".
ClientMethodName				Not required.
ClientMethodSource	X	X	X	Report "USEPA_CLP".
Comment				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
FinalAmount	X	X	X		Report the Final Amount of material produced upon completion of this Prep or Cleanup.
FinalAmountUnits	X	X	X		Report the Units for this Final Amount.
InitialAmount	X	X	X		Report the initial amount of extracted sample used for this cleanup method.
InitialAmountUnits	X	X	X		Report the Units for this Initial Amount.
LabMethodID					Not required.
LabMethodName					Not required.
LotNumber					Not required.
PreparationBatch	X	X	X		Links all samples that were extracted together. Report the Lab File ID of the associated Method Blank.
PreparationPlusCleanupType	X	X	X		Report "Preparation" or "Cleanup" as applicable.
PreparationType	X	X	X		Report "Sonication", "Soxhlet", or "Pressurized_Fluid" for Soil/Sediment. Report "Liq-Liq" or "Liq-Membrane" for Water.
PreparedDate	X	X	X		Report the date and time the sample was extracted.
ProcedureID					Not required.
ProcedureName					Not required.
Analyte	X	X	X		
AmountAdded	X	X	X		Report the volume of internal standard, DMC, or MS/MSD spiking solution added to the sample.
AmountAddedUnits	X	X	X		Report the volume units for the Amount Added.
AnalyteName	X	X	X		Report analytes as they appear in the SOW or as identified for TICs. Report unknown TICs as "Unknown-01", then increment with each TIC.
AnalyteNameContext					Not required.
AnalyteType	X	X	X		Report "Surrogate" for DMCs; "Internal_Standard" for internal standards; "Target" for all target compounds; "Spike" for all target compounds designated as spike compounds for MS/MSD analysis; or "TIC" for all TICs.
CASRegistryNumber	X	X	X		Report CAS Numbers as they appear in the SOW, and for TICs if known.
ClientAnalyteID	X	X	X		Report CAS Number. For TICs with no CAS Number, report TIC name or as "Unknown-01", then increment with each TIC.
Comment					Not required.
ExpectedResult	X	X	X		Report the theoretical final calculated concentration for the DMCs. For internal standards, report the final amount added in nanograms.
ExpectedResultUnits	X	X	X		For DMCs, report "ug/kg" for Soil/Sediment and "ug/L" for Water. For internal standards, report "ng".
IntermediateResult	X	X	X		Report the on-column amount in nanograms from the raw data. Leave blank if not detected.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	MS	MSD	Instructions
IntermediateResultUnits	X	X	X		Report "ng".
LabAnalyteID					Not required.
LabQualifiers	X	X	X		Report up to five flags as specified in the SOW (U, J, N, B, E, D, A, X, Y, Z).
LotNumber	X	X	X		Report the vendor/manufacturer assigned lot number for this standard (DMCs, internal standards, and MS/MSD spiking compounds only).
PeakID					Not required.
PercentBreakdown					Not required.
PercentBreakdownLimitHigh					Not required.
PercentBreakdownLimitType					Not required.
PercentDifference					Not required.
PercentDifferenceLimitHigh					Not required.
PercentDifferenceLimitLow					Not required.
PercentDifferenceLimitType					Not required.
PercentMatch	X	X			Report the percent match for TICs only.
PercentRecovery	X	X	X		Report the final calculated Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitHigh	X	X	X		Report the upper limit for the Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitLow	X	X	X		Report the lower limit for the Percent Recovery of the DMCs to +/- 1%.
PercentRecoveryLimitType	X	X	X		Report "Method".
Result	X	X	X		Report the final calculated concentration or amount to at least two significant figures. Leave blank if compound is not detected.
ResultLimitHigh					Not required.
ResultLimitLow					Not required.
ResultLimitType					Not required.
ResultType	X	X	X		Report "=" for all reported Result values.
ResultUnits	X	X	X		For Targets, TICs, DMCs, and spikes, report "ug/kg" for Soil/Sediment or "ug/L" for Water.
RPD					Not required.
RPDLimitHigh					Not required.
RPDLimitType					Not required.
StandardConcentration	X	X	X		Report the concentration of the internal standard, DMC, or MS/MSD spiking solution added to the sample.
StandardConcentrationUnits	X	X	X		Report the units for the Standard Concentration.
StandardID	X	X	X		Report the lab assigned identifier for this standard.
StandardSource	X	X	X		Report the vendor/manufacturer for this standard.
TailingFactor					Not required.
TailingFactorLimitHigh					Not required.
TailingFactorLimitType					Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
Peak	X	X	X		
CalibrationFactor					Not required.
CalibrationFactorUnits					Not required.
CalibrationType					Not required.
Coeffa0					Not required.
Coeffa1					Not required.
Coeffa2					Not required.
Coeffa3					Not required.
CoeffOfDetermination					Not required.
CoeffOfDeterminationLimitLow					Not required.
CoeffOfDeterminationLimitType					Not required.
Comment					Not required.
CorrelationCoeff					Not required.
CorrelationCoeffLimitLow					Not required.
CorrelationCoeffLimitType					Not required.
IntermediateResult	X	X	X		Report the on-column amount in nanograms from the raw data. Leave blank if compound is not detected.
IntermediateResultUnits	X	X	X		Report "ng".
LabQualifiers					Not required.
ManualIntegration	X	X	X		Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor					Not required.
MeanCalibrationFactorUnits					Not required.
MeanRetentionTime					Not required.
MeanRetentionTimeLimitHigh					Not required.
MeanRetentionTimeLimitLow					Not required.
MeanRetentionTimeLimitType					Not required.
MeanRetentionTimeUnits					Not required.
MeanRRF					Not required.
MeanRRFLimitLow					Not required.
MeanRRFLimitType					Not required.
PeakID	X	X	X		Report the primary quantitation ion used or "Total" if all ions were used.
PercentDifference					Not required.
PercentDifferenceLimitHigh					Not required.
PercentDifferenceLimitLow					Not required.
PercentDifferenceLimitType					Not required.
PercentRecovery					Not required.
PercentRecoveryLimitHigh					Not required.
PercentRecoveryLimitLow					Not required.
PercentRecoveryLimitType					Not required.
PercentRSD					Not required.
PercentRSDLimitHigh					Not required.
PercentRSDLimitLow					Not required.
PercentRSDLimitType					Not required.
Resolution					Not required.
ResolutionLimitLow					Not required.
ResolutionLimitType					Not required.
ResolutionUnits					Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Sample	MB	MS	MSD	Instructions
Response	X	X	X		Report the actual Peak Area from the raw data.
ResponseLimitHigh	X	X	X		Report the upper limit for this response for the internal standards only.
ResponseLimitLow	X	X	X		Report the lower limit for this response for the internal standards only.
ResponseLimitType	X	X	X		Report "Method".
ResponseUnits	X	X	X		Report "Peak_Area".
Result					Not required.
ResultLimitHigh					Not required.
ResultLimitLow					Not required.
ResultLimitType					Not required.
ResultType					Not required.
ResultUnits					Not required.
RetentionTime	X	X	X		Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X	X	X		Report the upper limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitLow	X	X	X		Report the lower limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitType	X	X	X		Report "Method".
RetentionTimeUnits	X	X	X		Report "Minutes".
RRF					Not required.
RRFLimitLow					Not required.
RRFLimitType					Not required.
WeightingFactor					Not required.
PeakComparison	X	X	X		
AnalyteName	X	X	X		Report the name of the associated internal standard as it appears in the SOW.
AnalyteNameContext					Not required.
CASRegistryNumber	X	X	X		Report the CAS Number of the associated internal standard.
ClientAnalyteID	X	X	X		Report the CAS Number of the associated internal standard.
Comment					Not required.
LabAnalyteID					Not required.
PeakID	X	X	X		Report the primary quantitation ion used for the internal standard.
PercentRatio					Not required.
PercentRatioLimitHigh					Not required.
PercentRatioLimitLow					Not required.
PercentRatioLimitType					Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
Header	X	X	X	
ClientDataPackageID	X	X	X	Report the Case Number.
ClientDataPackageName	X	X	X	Report the Contract Number.
ClientDataPackageVersion	X	X	X	Report "1", then increment with each resubmission.
EDDID	X	X	X	Report "SEDD".
EDDVersion	X	X	X	Report "Draft 5.1".
EDDImplementationID	X	X	X	Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	X	Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	Report software version number.
LabDataPackageID	X	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	Report "BNA" or "BNA_SIM".
LabDataPackageVersion	X	X	X	Report "1", then increment with each resubmission.
LabReportedDate	X	X	X	Report the date this data was reported to the client.
DateFormat	X	X	X	Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment				Not required.
SamplePlusMethod				Not required.
InstrumentQC	X	X	X	
ClientInstrumentQCType				Not required.
ClientMethodID	X	X	X	Report "SOM01.X".
ClientMethodName				Not required.
ClientMethodSource	X	X	X	Report "USEPA_CLP".
Comment				Not required.
LabInstrumentQCID	X	X	X	Report the EPA Sample Number. For ICAL, report the EPA Sample Number of the first standard.
LabID	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	Report the Lab Name.
QCLinkage	X	X	X	Report "AnalysisBatch" for Tune and CCV, "RunBatch" for ICAL.
QCType	X	X	X	Report "Instrument_Performance_Check", "Initial_Calibration", or "Continuing_Calibration_Verification".
Analysis	X	X	X	
AliquotAmount				Not required.
AliquotAmountUnits				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
AnalysisBatch	X	X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the standard (Tune or CCV) that starts this sequence. For the standard that starts the 12-hour period, enter the Lab File ID of the standard itself.
AnalysisBatchEnd			X	Links this analysis to the end of a 12-hour period. Report the Lab File ID of the CCV that ends this sequence. For the closing CCV that closes the 12-hour period, report the Lab File ID of the standard itself.
AnalysisGroupID		X		This links a group of analyses together that are used for the initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that starts this ICAL sequence.
AnalysisType	X	X	X	For Tune, report "Initial". For ICAL/CCV, report the calibration level used (e.g., "RRF-20").
Analyst	X	X	X	Report Analyst's initials.
AnalyzedAmount				Not required.
AnalyzedAmountUnits				Not required.
AnalyzedDate	X	X	X	Report the date and time the sample was analyzed.
BottleID				Not required.
ClientAnalysisID	X	X	X	Report the EPA Sample Number.
ClientMethodID	X	X	X	Report "SOM01.X".
ClientMethodName				Not required.
ClientMethodSource	X	X	X	Report "USEPA_CLP".
Column	X	X	X	Report the GC Column used.
ColumnInternalDiameter	X	X	X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X	X	X	Report "mm".
ColumnLength	X	X	X	Report the GC Column Length in meters.
ColumnLengthUnits	X	X	X	Report "m".
Comment				Not required.
ConfirmationAnalysisID				Not required.
DetectorID				Not required.
DetectorType				Not required.
DilutionFactor				Not required.
HeatedPurge				Not required.
InjectionVolume	X	X	X	Report the Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X	X	X	Report "uL".
InstrumentID	X	X	X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	Report the Lab File ID.
LabFileID	X	X	X	Report the Lab File ID.
LabMethodID				Not required.
LabMethodName				Not required.
ProcedureID				Not required.
ProcedureName				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
ResultBasis				Not required.
RunBatch	X	X	X	Links this analysis to an initial calibration. Report the Lab File ID of the standard (Tune or calibration standard) that started the ICAL sequence.
AnalysisGroup		X		
AnalysisGroupID		X		This links a group of analyses together that are used for the initial calibration. Report the Lab File ID of the standard that starts this ICAL sequence.
AnalysisType		X		Report "Initial_Calibration".
Comment				Not required.
Handling				Not required.
ReportedResult				Not required.
PreparationPlusCleanup				Not required.
Analyte	X	X	X	
AmountAdded	X	X	X	Report the volume of the standard used.
AmountAddedUnits	X	X	X	Report the volume units for the Amount Added.
AnalyteName	X	X	X	Report analytes as they appear in the SOW.
AnalyteNameContext				Not required.
AnalyteType	X	X	X	Report "Target" for target compounds; "Surrogate" for DMCs; or "Internal_Standard" for internal standards as appropriate.
CASRegistryNumber	X	X	X	Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	Report CAS Number.
Comment				Not required.
ExpectedResult		X	X	For internal standards, report the final amount added in nanograms.
ExpectedResultUnits		X	X	For internal standards, report "ng".
IntermediateResult			X	Report the on-column amount in nanograms from the raw data.
IntermediateResultUnits			X	Report "ng".
LabAnalyteID				Not required.
LabQualifiers				Not required.
LotNumber	X	X	X	Report the vendor/manufacturer assigned lot number for this standard.
PeakID				Not required.
PercentBreakdown				Not required.
PercentBreakdownLimitHigh				Not required.
PercentBreakdownLimitType				Not required.
PercentDifference				Not required.
PercentDifferenceLimitHigh				Not required.
PercentDifferenceLimitLow				Not required.
PercentDifferenceLimitType				Not required.
PercentMatch				Not required.
PercentRecovery				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
PercentRecoveryLimitHigh				Not required.
PercentRecoveryLimitLow				Not required.
PercentRecoveryLimitType				Not required.
Result				Not required.
ResultLimitHigh				Not required.
ResultLimitLow				Not required.
ResultLimitType				Not required.
ResultType				Not required.
ResultUnits				Not required.
RPD				Not required.
RPDLimitHigh				Not required.
RPDLimitType				Not required.
StandardConcentration	X	X	X	Report the concentration of the standard used.
StandardConcentrationUnits	X	X	X	Report the units for the Standard Concentration.
StandardID	X	X	X	Report the lab assigned identifier for this standard.
StandardSource	X	X	X	Report the vendor/manufacturer for this standard.
TailingFactor				Not required.
TailingFactorLimitHigh				Not required.
TailingFactorLimitType				Not required.
Peak	X	X	X	
CalibrationFactor				Not required.
CalibrationFactorUnits				Not required.
CalibrationType		X		Report "Average_Response_Factor".
Coeffa0				Not required.
Coeffa1				Not required.
Coeffa2				Not required.
Coeffa3				Not required.
CoeffiOfDetermination				Not required.
CoeffOfDeterminationLimitLow				Not required.
CoeffOfDeterminationLimitType				Not required.
Comment				Not required.
CorrelationCoeff				Not required.
CorrelationCoeffLimitLow				Not required.
CorrelationCoeffLimitType				Not required.
IntermediateResult		X	X	Report the on-column amount in nanograms from the raw data.
IntermediateResultUnits		X	X	Report "ng".
LabQualifiers				Not required.
ManualIntegration	X	X	X	Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor				Not required.
MeanCalibrationFactorUnits				Not required.
MeanRetentionTime				Not required.
MeanRetentionTimeLimitHigh				Not required.
MeanRetentionTimeLimitLow				Not required.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
MeanRetentionTimeLimitType				Not required.
MeanRetentionTimeUnits				Not required.
MeanRRF		X		Report the calculated mean RRF to +/- 0.001 under the AnalysisGroup node only.
MeanRRFLimitLow				Not required.
MeanRRFLimitType				Not required.
PeakID	X	X	X	Report the primary quantitation ion used or "Total" if all ions were used.
PercentDifference			X	Report the calculated Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitHigh			X	Report the upper limit for the Percent Difference to +/- 0.1%.
PercentDifferenceLimitLow			X	Report the lower limit for the Percent Difference to +/- 0.1%.
PercentDifferenceLimitType			X	Report "Method".
PercentRecovery				Not required.
PercentRecoveryLimitHigh				Not required.
PercentRecoveryLimitLow				Not required.
PercentRecoveryLimitType				Not required.
PercentRSD		X		Report the calculated Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.
PercentRSDLimitHigh		X		Report the upper limit for the Percent Relative Standard Deviation to +/- 0.1% under the Analysis Group node only.
PercentRSDLimitLow				Not required.
PercentRSDLimitType		X		Report "Method".
Resolution				Not required.
ResolutionLimitLow				Not required.
ResolutionLimitType				Not required.
ResolutionUnits				Not required.
Response	X	X	X	Report the actual Peak Area from the raw data.
ResponseLimitHigh		X	X	Report the upper limit for this response for the internal standards only.
ResponseLimitLow		X	X	Report the lower limit for this response for the internal standards only.
ResponseLimitType		X	X	Report "Method".
ResponseUnits	X	X	X	Report "Peak_Area".
Result				Not required.
ResultLimitHigh				Not required.
ResultLimitLow				Not required.
ResultLimitType				Not required.
ResultType				Not required.
ResultUnits				Not required.
RetentionTime	X	X	X	Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh		X	X	Report the upper limit for this retention time in decimal minutes for the internal standards.

Table 2

Semivolatiles Data Element Instructions (Con't)

Node and Data Elements	Applicability Tune	ICAL	CCV	Instructions
RetentionTimeLimitLow		X	X	Report the lower limit for this retention time in decimal minutes for the internal standards.
RetentionTimeLimitType		X	X	Report "Method".
RetentionTimeUnits	X	X	X	Report "Minutes".
RRF		X	X	Report the calculated RRF to +/- 0.001. Leave blank if this analyte is not to be included in the initial calibration curve.
RRFLimitLow		X	X	Report the lower limit for the RRF to +/- 0.001.
RRFLimitType		X	X	Report "Method".
WeightingFactor				Not required.
PeakComparison	X	X	X	
AnalyteName	X	X	X	Report tune compound or the associated internal standard as they appear in the SOW.
AnalyteNameContext				Not required.
CASRegistryNumber	X	X	X	Report the CAS Number of the tune compound or associated internal standard.
ClientAnalyteID	X	X	X	Report the CAS Number of the tune compound or associated internal standard.
Comment				Not required.
LabAnalyteID				Not required.
PeakID	X	X	X	For tunes, report the mass being compared to the monitored mass. For internal standards, report the primary quantitation ion.
PercentRatio	X			Report the Percent Ratio (%Relative Abundance or %Mass) to +/- 0.01%.
PercentRatioLimitHigh	X			Report the upper limit for the Percent Ratio to +/- 0.01%.
PercentRatioLimitLow	X			Report the lower limit for the Percent Ratio to +/- 0.01%.
PercentRatioLimitType	X			Report "Method".

Table 3

Pesticides Data Element Instructions

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
Header	X	X	X	X	X	
ClientDataPackageID	X	X	X	X	X	Report the Case Number.
ClientDataPackageName	X	X	X	X		Report the Contract Number.
ClientDataPackageVersion	X	X	X	X	X	Report "1", then increment with each resubmission.
EDDID	X	X	X	X	X	Report "SEDD".
EDDVersion	X	X	X	X	X	Report "Draft 5.1".
EDDImplementationID	X	X	X	X	X	Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	X	X	X	Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	X	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	X	X	X	Report software version number.
LabDataPackageID	X	X	X	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	X	X	Report "Pest".
LabDataPackageVersion	X	X	X	X	X	Report "1", then increment with each resubmission.
LabReportedDate	X	X	X	X	X	Report the date this data was reported to the client.
DateFormat	X	X	X	X	X	Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment						Not required.
SamplePlusMethod	X	X	X	X	X	
Bottles						Not required.
BottleType						Not required.
ClientMethodID	X	X	X	X	X	Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource	X	X	X	X	X	Report "USEPA_CLP".
ClientMethodType	X	X	X	X	X	Report "GC_External_Standard".
ClientSampleID	X	X	X	X	X	Report the EPA Sample Number.
CollectedDate	X		X			Report the date and time the sample was collected.
Comment						Not required.
Composite						Not required.
CoolerID						Not required.
CustodyID	X		X			Report the Traffic Report/Chain of Custody Form number.
EquipmentBatch						Not required.
LabContract	X	X	X	X		Report the Contract Number.
LabID	X	X	X	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	X	X	X	Report the Lab Name.
LabReceiptDate	X		X			Report the date and time the sample was received.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
LabReportingBatch	X	X	X	X	X	Links all samples analyzed to this SDG. Report the SDG Number.
LabSampleID	X	X	X	X		Report the Lab Sample ID as assigned by the laboratory.
MatrixID	X	X	X	X		Report "Water", "Soil", or "Sediment".
MatrixName						Not required.
MethodLevel						Not required.
MethodBatch						Not required.
OriginalClientSampleID			X			Report the EPA Sample Number of the original sample from which this sample was derived.
OriginalLabSampleID						Not required.
PercentMoisture	X	X	X	X		For Soil/Sediment samples only, report the percent moisture to at least two significant figures.
PercentSolids						Not required.
pH	X		X			Report the pH as measured by the laboratory upon receipt to +/- 0.1 pH units.
Preservative	X		X			Report any chemical preservative used.
ProjectID	X	X	X	X		Report the Case Number.
ProjectName						Not required.
QCCategory		X	X	X	X	Report "Blank" for MB, CB and IB; "Spike" for MS; "Spike_Duplicate" for MSD; and "Blank_Spike" for LCS.
QCLinkage		X	X	X	X	Report "LabReportingBatch" for MS/MSD; "PreparationBatch" for MB and LCS; "CleanupBatch" for CB; or "AnalysisBatch" for IB and non-client samples.
QCType	X	X	X	X	X	Report "Method_Blank" for MB; "Cleanup_Blank" for CB; "Instrument_Blank" for IB; "Matrix_Spike" for MS; "Matrix_Spike_Duplicate" for MSD; "Laboratory_Control_Sample" for LCS; "Field_Sample" for field samples; "Field_Blank" for field, equipment rinse, trip, or other blanks; "PT_Sample" for Performance Evaluation samples; or "Non_Client_Sample" for NCS.
SamplingBatch						Not required.
ServicesID	X		X			Report the Modification Reference Number, if applicable.
ShippingBatch						Not required.
SiteID						Not required.
SiteName						Not required.
StorageBatch						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability						Instructions
	Sample	MB	CB IB	MS MSD	LCS	NCS	
Temperature	X			X			Report the temperature as measured by the laboratory upon receipt to +/- 1°C.
TemperatureUnits	X			X			Report "C".
InstrumentQC							Not required.
Analysis	X			X	X	X	
AliquotAmount							Not required.
AliquotAmountUnits							Not required.
AnalysisBatch	X		X	X	X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the PIBLK (for CCV) or RESC (for initial calibration) that starts this sequence. For the PIBLK or RESC at the beginning of a 12-hour period, report the Lab File ID of the PIBLK or RESC itself.
AnalysisBatchEnd	X		X	X	X	X	Links this analysis to the QC immediately following a 12-hour period. Report the Lab File ID of the last CCV standard used to close out the 12-hour period.
AnalysisGroupID							Not required.
AnalysisType	X		X	X	X		Report "Initial", "Dilution-01", "Reanalysis-01", or "Reinjection-01". Then increment as necessary.
Analyst	X		X	X	X		Report Analyst's initials.
AnalyzedAmount							Not required.
AnalyzedAmountUnits							Not required.
AnalyzedDate	X		X	X	X	X	Report the date and time the sample was analyzed.
BottleID							Not required.
ClientAnalysisID	X		X	X	X	X	Report the EPA Sample Number.
ClientMethodID	X		X	X	X	X	Report "SOM01.X".
ClientMethodName							Not required.
ClientMethodSource	X		X	X	X	X	Report "USEPA_CLP".
Column	X		X	X	X	X	Report the GC Column used.
ColumnInternalDiameter	X		X	X	X	X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X		X	X	X	X	Report "mm".
ColumnLength	X		X	X	X	X	Report the GC Column Length in meters.
ColumnLengthUnits	X		X	X	X	X	Report "m".
Comment							Not required.
ConfirmationAnalysisID	X		X	X	X		Links an analysis to a confirmation analysis. Report the Lab File ID of the confirmation analysis.
DetectorID							Not required.
DetectorType	X		X	X	X	X	Report "ECD".

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
DilutionFactor	X	X	X	X		Report the Dilution Factor used to +/- 0.1.
HeatedPurge						Not required.
InjectionVolume	X	X	X	X		Report the column specific Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X	X	X	X		Report "uL".
InstrumentID	X	X	X	X	X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	X	X	Report the Lab File ID.
LabFileID	X	X	X	X	X	Report the Lab File ID.
LabMethodID						Not required.
LabMethodName						Not required.
ProcedureID						Not required.
ProcedureName						Not required.
ResultBasis	X	X	X	X		Report "Dry" for Soil/Sediment samples. Report "Total" or "Filtered" for water samples, as applicable.
RunBatch	X	X	X	X	X	Links this analysis to an initial calibration. Report the Lab File ID of the RESC standard that started the ICAL sequence.
AnalysisGroup						Not required.
Handling	X	X	X	X		
Analyst						Not required.
BottleID						Not required.
ClientMethodID	X	X	X	X		Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource	X		X			Report "USEPA_CLP".
Comment						Not required.
HandledDate	X	X	X	X		Report the date and time the sample was handled.
HandlingBatch						Not required.
HandlingType	X		X			Report "Decanted" if water was decanted from Soil samples, otherwise report "Not_Decanted".
InitialAmount						Not required.
InitialAmountUnits						Not required.
LabMethodID						Not required.
LabMethodName						Not required.
ProcedureID						Not required.
ProcedureName						Not required.
PercentMoisture						Not required.
PercentSolids						Not required.
SampleAmount						Not required.
SampleAmountUnits						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
ReportedResult	X	X	X	X		
AnalysisGroupID						Not required.
AnalyteName	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext						Not required.
AnalyteType	X	X	X	X		Report "Target" for all target compounds and "Spike" for all target compounds designated as spike compounds for MS/MSD and LCS analysis.
CASRegistryNumber	X	X	X	X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	X		Report CAS Number.
Comment						Not required.
DetectionLimit	X	X	X	X		For target compounds, report the Method Detection Limit as determined by the lab.
DetectionLimitType	X	X	X	X		Report "MDL".
DetectionLimitUnits	X	X	X	X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ExpectedResult			X	X		Report the theoretical final calculated concentration for the spiked analytes.
ExpectedResultUnits			X	X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
LabAnalysisID	X	X	X	X		Report the Lab File ID from the analysis this reported result was derived from.
LabAnalyteID						Not required.
LabQualifiers	X	X	X	X		Report up to five flags as specified in the SOW (U, J, P, C, B, E, D, X, Y, Z).
PeakID						Not required.
PercentDifference	X		X	X		Report the percent difference between the reported result and the confirmation result to +/- 1% (excluding IB).
PercentDifferenceLimitHigh	X		X	X		Report the upper limit for the percent difference (excluding IB).
PercentDifferenceLimitLow						Not required.
PercentDifferenceLimitType	X		X	X		Report "Method" (excluding IB).
PercentRecovery						Not required.
PercentRecoveryLimitHigh						Not required.
PercentRecoveryLimitLow						Not required.
PercentRecoveryLimitType						Not required.
QuantitationLimit	X	X	X	X		For target compounds, report the adjusted CRQL.
QuantitationLimitType	X	X	X	X		Report "CRQL".
QuantitationLimitUnits	X	X	X	X		Report "ug/Kg" for Soil/Sediment and "ug/L" for Water.
ReportingLimit	X	X	X	X		For target compounds, report the adjusted CRQL.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability						Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
ReportingLimitType	X		X		X	X	X		Report "CRQL".
ReportingLimitUnits	X		X		X	X	X		Report "ug/Kg" for Soil/Sediment and "ug/L" for Water.
Result	X		X		X	X	X		Report the final calculated concentration to at least two significant figures. Leave blank if analyte is not detected.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X		X		X	X	X		Report "=" for all reported Result values.
ResultUnits	X		X		X	X	X		Report "ug/Kg" for Soil/Sediment and "ug/L" for Water.
RetentionTime									Not required.
RetentionTimeUnits									Not required.
RPD									Not required.
RPDLimitHigh									Not required.
RPDLimitType									Not required.
PreparationPlusCleanup	X		X		X	X	X		
AliquotAmount	X		X		X	X	X		Report the sample amount used for this analysis to at least three significant figures.
AliquotAmountUnits	X		X		X	X	X		Report "g" for Soil/Sediment and "mL" for Water.
Analyst									Not required.
BottleID									Not required.
CleanedUpDate	X		X		X	X	X		Report the date and time the sample was cleaned up.
CleanupBatch	X		X		X	X	X		Links all samples that were cleaned up together. Report the Lab File ID of the associated blank or other unique identifier.
CleanupType	X		X		X	X	X		Report "GPC", "Florisil", "Sulfur", "Silica_Gel", "Alumina", or "Acid_Base_Partition" as applicable.
ClientMethodID	X		X		X	X	X		Report "SOM01.X".
ClientMethodName									Not required.
ClientMethodSource	X		X		X	X	X		Report "USEPA_CLP".
Comment									Not required.
FinalAmount	X		X		X	X	X		Report the Final Amount of material produced upon completion of this Prep or Cleanup.
FinalAmountUnits	X		X		X	X	X		Report the Units for this Final Amount.
InitialAmount	X		X		X	X	X		Report the initial amount of extracted sample used for this cleanup method.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
InitialAmountUnits	X	X	X	X		Report the Units for this Initial Amount.
LabMethodID						Not required.
LabMethodName						Not required.
LotNumber	X	X	X	X		Report the manufacturer's lot number for the Florisil cartridges used.
PreparationBatch	X	X	X	X		Links all samples that were extracted together. Report the Lab File ID of the associated Method Blank.
PreparationPlusCleanupType	X	X	X	X		Report "Preparation" or "Cleanup" as applicable.
PreparationType	X	X	X	X		Report "Sonication", "Soxhlet", or "Pressurized_Fluid" for Soil/Sediment. Report "Sep_Funnel", "Liq_Liq", or "Liq_Membrane" for Water.
PreparedDate	X	X	X	X		Report the date and time the sample was extracted.
ProcedureID						Not required.
ProcedureName						Not required.
Analyte	X	X	X	X		
AmountAdded	X	X	X	X		Report the volume of surrogate standard or spiking solution added to the sample.
AmountAddedUnits	X	X	X	X		Report the volume units for the Amount Added.
AnalyteName	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext						Not required.
AnalyteType	X	X	X	X		Report "Target" for all target compounds, "Surrogate" for surrogate compounds, or "Spike" for target compounds designated as spike compounds for MS/MSD or LCS analysis.
CASRegistryNumber	X	X	X	X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	X		Report CAS Number.
Comment						Not required.
ExpectedResult	X	X	X	X		Report the theoretical final calculated concentration for the surrogates and LCS spike compounds.
ExpectedResult_Units	X	X	X	X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
IntermediateResult	X	X	X	X		Report the on-column amount in nanograms from the raw data. Leave blank if not detected.
IntermediateResultUnits	X	X	X	X		Report "ng".
LabAnalyteID						Not required.
LabQualifiers	X	X	X	X		Report up to five flags as specified in the SOW (U, J, P, C, B, E, D, X, Y, Z).

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB CB IB	MS MSD	LCS	NCS	Instructions
LotNumber	X	X	X	X		Report the vendor/manufacturer assigned lot number for this standard.
PeakID						Not required.
PercentBreakdown						Not required.
PercentBreakdownLimitHigh						Not required.
PercentBreakdownLimitType						Not required.
PercentDifference						Not required.
PercentDifferenceLimitHigh						Not required.
PercentDifferenceLimitLow						Not required.
PercentDifferenceLimitType						Not required.
PercentMatch						Not required.
PercentRecovery	X	X	X	X		Report the final calculated Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitHigh	X	X	X	X		Report the upper limit for the Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitLow	X	X	X	X		Report the lower limit for the Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitType	X	X	X	X		Report "Method".
Result	X	X	X	X		Report the calculated concentration to at least two significant figures. Leave blank if compound is not detected.
ResultLimitHigh						Not required.
ResultLimitLow						Not required.
ResultLimitType						Not required.
ResultType	X	X	X	X		Report "=" for all reported Result values.
ResultUnits	X	X	X	X		Report "ug/kg" for Soil/Sediment or "ug/L" for Water.
RPD			X			Report the RPD to +/- 1%.
RPDLimitHigh			X			Report the upper limit for the RPD to +/- 1%.
RPDLimitType			X			Report "Method".
StandardConcentration	X	X	X	X		Report the concentration of the surrogate standard or spiking solution used.
StandardConcentrationUnits	X	X	X	X		Report the units for the Standard Concentration.
StandardID	X	X	X	X		Report the lab assigned identifier for this standard.
StandardSource	X	X	X	X		Report the vendor/manufacturer for this standard.
TailingFactor						Not required.
TailingFactorLimitHigh						Not required.
TailingFactorLimitType						Not required.
Peak	X	X	X	X		
CalibrationFactor						Not required.
CalibrationFactorUnits						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
CalibrationType									Not required.
Coeffa0									Not required.
Coeffa1									Not required.
Coeffa2									Not required.
Coeffa3									Not required.
CoeffOfDetermination									Not required.
CoeffOfDeterminationLimitLow									Not required.
CoeffOfDeterminationLimitType									Not required.
Comment									Not required.
CorrelationCoeff									Not required.
CorrelationCoeffLimitLow									Not required.
CorrelationCoeffLimitType									Not required.
IntermediateResult	X		X		X		X		Report the on-column amount in nanograms from the raw data for this peak. Leave blank if compound is not detected.
IntermediateResultUnits	X		X		X		X		Report "ng".
LabQualifiers									Not required.
ManualIntegration	X		X		X		X		Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor									Not required.
MeanCalibrationFactorUnits									Not required.
MeanRetentionTime									Not required.
MeanRetentionTimeLimitHigh									Not required.
MeanRetentionTimeLimitLow									Not required.
MeanRetentionTimeLimitType									Not required.
MeanRetentionTimeUnits									Not required.
MeanRRF									Not required.
MeanRRFLimitLow									Not required.
MeanRRFLimitType									Not required.
PeakID	X		X		X		X		Report the peak identifier as used by the laboratory to uniquely identify this peak.
PercentDifference									Not required.
PercentDifferenceLimitHigh									Not required.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType									Not required.
PercentRecovery									Not required.
PercentRecoveryLimitHigh									Not required.
PercentRecoveryLimitLow									Not required.
PercentRecoveryLimitType									Not required.
PercentRSD									Not required.
PercentRSDLimitHigh									Not required.
PercentRSDLimitLow									Not required.
PercentRSDLimitType									Not required.
Resolution									Not required.
ResolutionLimitLow									Not required.
ResolutionLimitType									Not required.
ResolutionUnits									Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
Response	X		X		X		X		Report the actual Peak Area (or Peak Height) from the raw data.
ResponseLimitHigh									Not required.
ResponseLimitLow									Not required.
ResponseLimitType									Not required.
ResponseUnits	X		X		X		X		Report "Peak_Area" or "Peak_Height".
Result									Not required.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType									Not required.
ResultUnits									Not required.
RetentionTime	X		X		X		X		Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X		X		X		X		Report the upper limit for this Retention Time in decimal minutes.
RetentionTimeLimitLow	X		X		X		X		Report the lower limit for this Retention Time in decimal minutes.
RetentionTimeLimitType	X		X		X		X		Report "Method".
RetentionTimeUnits	X		X		X		X		Report "Minutes".
RRF									Not required.
RRFLimitLow									Not required.
RRFLimitType									Not required.
WeightingFactor									Not required.
PeakComparison									Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
Header	X	X	X	X		
ClientDataPackageID	X	X	X	X		Report the Case Number.
ClientDataPackageName	X	X	X	X		Report the Contract Number.
ClientDataPackageVersion	X	X	X	X		Report "1", then increment with each resubmission.
EDDID	X	X	X	X		Report "SEDD".
EDDVersion	X	X	X	X		Report "Draft 5.1".
EDDImplementationID	X	X	X	X		Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	X	X		Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	X	X		Report name of generating software or vendor.
GeneratingSystemVersion						Report software version number
LabDataPackageID	X	X	X	X		Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	X	X		Report "Pest".
LabDataPackageVersion	X	X	X	X		Report "1", then increment with each resubmission.
LabReportedDate	X	X	X	X		Report the date this data was reported to the client.
DateFormat	X	X	X	X		Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment						Not required.
SamplePlusMethod						Not Required.
InstrumentQC	X	X	X	X		
ClientInstrumentQCType	X					For the RESC, report "1" if using a single mixture to calibrate instrument. Report "2" if using two mixtures to calibrate instrument.
ClientMethodID	X	X	X	X		Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource	X	X	X	X		Report "USEPA_CLP".
Comment						Not required.
LabInstrumentQCID	X	X	X	X		Report the EPA Sample Number. For ICAL, report the EPA Sample Number of the first standard.
LabID	X	X	X	X		Report the Agency-assigned Lab Code.
LabName	X	X	X	X		Report the Lab Name.
QCLinkage	X	X	X	X		Report "AnalysisBatch" for CCV, "RunBatch" for ICAL and IPC, and "CleanupBatch" for FLO and GPC.
QCType	X	X	X	X		Report "Instrument_Performance_Check" for the RESC standard; "Instrument_Performance_Check_PEM" for the PEM standards that are part of the ICAL; "Initial_Calibration" for the initial calibration; "Continuing_Calibration_Verification" for the continuing calibration verification; "Florisil_Cartridge_Check" for the Florisil cartridge check; and "GPC_Calibration_Check" for the GPC calibration check.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
Analysis	X	X	X	X		
AliquotAmount						Not required.
AliquotAmountUnits						Not required.
AnalysisBatch	X	X	X	X		Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the PIBLK (for CCV) or RESC (for initial calibration) that starts this sequence. For the PIBLK or RESC at the beginning of a 12-hour period, report the Lab File ID of the PIBLK or RESC itself.
AnalysisBatchEnd			X	X		Links this analysis to the QC immediately following the end of a 12-hour period. Report the Lab File ID of the last CCV used to close out the 12-hour period. For the last CCV, report the Lab File ID of the CCV itself.
AnalysisGroupID		X				Links a group of analyses together that are used for the multipoint initial calibration. Report the Lab File ID of the standard that starts this sequence.
AnalysisType	X	X	X	X		For IPC, FLO, and GPC, report "Initial". For ICAL/CCV report the calibration level used (e.g., "CF-4").
Analyst	X	X	X	X		Report Analyst's initials.
AnalyzedAmount						Not required.
AnalyzedAmountUnits						Not required.
AnalyzedDate	X	X	X	X		Report the date and time the sample was analyzed.
BottleID						Not required.
ClientAnalysisID	X	X	X	X		Report the EPA Sample Number.
ClientMethodID	X	X	X	X		Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource	X	X	X	X		Report "USEPA_CLP".
Column	X	X	X	X		Report the GC Column used.
ColumnInternalDiameter	X	X	X	X		Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X	X	X	X		Report "mm".
ColumnLength	X	X	X	X		Report the GC Column Length in meters.
ColumnLengthUnits	X	X	X	X		Report "m".
Comment						Not required.
ConfirmationAnalysisID						Not required.
DetectorID						Not required.
DetectorType	X	X	X	X		Report "ECD".
DilutionFactor						Not required.
HeatedPurge						Not required.
InjectionVolume	X	X	X	X		Report the column specific Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X	X	X	X		Report "uL".
InstrumentID	X	X	X	X		Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	X	X		Report the Lab File ID.
LabFileID	X	X	X	X		Report the Lab File ID.
LabMethodID						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
LabMethodName						Not required.
ProcedureID						Not required.
ProcedureName						Not required.
ResultBasis						Not required.
RunBatch	X	X	X		X	Links this analysis to an initial calibration. Report the Lab File ID of the RESC standard that started this ICAL sequence.
AnalysisGroup		X				
AnalysisGroupID		X				Links a group of analyses together that are used for the initial calibration. Report the Lab File ID of the standard that starts this sequence.
AnalysisType		X				Report "Initial_Calibration".
Comment						Not required.
Handling						Not required.
ReportedResult						Not required.
PreparationPlusCleanup					X	
AliquotAmount						Not required.
AliquotAmountUnits						Not required.
Analyst						Not required.
BottleID						Not required.
CleanedUpDate					X	Report the date and time the sample was cleaned up.
CleanupBatch					X	Links all samples that were cleaned up together. Report the Lab File ID of the associated cleanup blank.
CleanupType					X	Report "GPC" or "Florisil" as applicable.
ClientMethodID					X	Report "SOM01.X".
ClientMethodName						Not required.
ClientMethodSource					X	Report "USEPA_CLP".
Comment						Not required.
FinalAmount					X	Report the Final Amount of material produced upon completion of this Prep or Cleanup.
FinalAmountUnits					X	Report the Units for this Final Amount.
InitialAmount					X	Report the initial amount of extracted sample used for this cleanup method.
InitialAmountUnits					X	Report the Units for this Initial Amount.
LabMethodID						Not required.
LabMethodName						Not required.
LotNumber					X	Report the manufacturer's lot number for the Florisil cartridges used.
PreparationBatch						Not required.
PreparationPlusCleanupType					X	Report "Cleanup".
PreparationType						Not required.
PreparedDate						Not required.
ProcedureID						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
ProcedureName						Not required.
Analyte	X	X	X	X		
AmountAdded	X	X	X	X		Report the volume of the standard used.
AmountAddedUnits	X	X	X	X		Report the volume units for the Amount Added.
AnalyteName	X	X	X	X		Report analytes as they appear in the SOW.
AnalyteNameContext						Not required.
AnalyteType	X	X	X	X		Report "Target" for target compounds or "Surrogate" for surrogates.
CASRegistryNumber	X	X	X	X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	X	X		Report CAS Number.
Comment						Not required.
ExpectedResult	X	X	X	X		Report the final amount added in nanograms.
ExpectedResultUnits	X	X	X	X		Report "ng".
IntermediateResult	X	X	X	X		Report the on-column amount in nanograms from the raw data.
IntermediateResultUnits	X	X	X	X		Report "ng".
LabAnalyteID						Not required.
LabQualifiers						Not required.
LotNumber	X	X	X	X		Report the vendor/manufacturer assigned lot number for this standard.
PeakID						Not required.
PercentBreakdown	X					Report the calculated Percent Breakdown for 4,4'-DDT and Endrin to +/- 1%.
PercentBreakdownLimitHigh	X					Report the upper limit for the Percent_Breakdown to +/- 1%.
PercentBreakdownLimitType	X					Report "Method".
PercentDifference						Not required.
PercentDifferenceLimitHigh						Not required.
PercentDifferenceLimitLow						Not required.
PercentDifferenceLimitType						Not required.
PercentMatch						Not required.
PercentRecovery					X	Report the final calculated Percent Recovery to +/- 1%.
PercentRecoveryLimitHigh					X	Report the upper limit for the Percent Recovery to +/- 1%.
PercentRecoveryLimitLow					X	Report the lower limit for the Percent Recovery to +/- 1%.
PercentRecoveryLimitType					X	Report "Method".
Result						Not required.
ResultLimitHigh						Not required.
ResultLimitLow						Not required.
ResultLimitType						Not required.
ResultType						Not required.
ResultUnits						Not required.
RPD						Not required.
RPDLimitHigh						Not required.
RPDLimitType						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
StandardConcentration	X	X	X	X		Report the concentration of the standard used.
StandardConcentrationUnits	X	X	X	X		Report the units for the Standard Concentration.
StandardID	X	X	X	X		Report the lab assigned identifier for this standard.
StandardSource	X	X	X	X		Report the vendor/manufacturer for this standard.
TailingFactor						Not required.
TailingFactorLimitHigh						Not required.
TailingFactorLimitType						Not required.
Peak	X	X	X	X		
CalibrationFactor		X	X			Report the calculated Calibration Factor. Leave blank if this compound is not to be included in the initial calibration curve.
CalibrationFactorUnits		X	X			Report the units for the Calibration Factor.
CalibrationType		X				Report "Average_Calibration_Factor".
Coeffa0						Not required.
Coeffa1						Not required.
Coeffa2						Not required.
Coeffa3						Not required.
CoeffOfDetermination						Not required.
CoeffOfDeterminationLimitLow						Not required.
CoeffOfDeterminationLimitType						Not required.
Comment						Not required.
CorrelationCoeff						Not required.
CorrelationCoeffLimitLow						Not required.
CorrelationCoeffLimitType						Not required.
IntermediateResult	X	X	X	X		Report the on-column amount in nanograms from the raw data for this peak. Leave blank if compound is not detected.
IntermediateResultUnits	X	X	X	X		Report "ng".
LabQualifiers						Not required.
ManualIntegration	X	X	X	X		Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor		X				Report the calculated Mean Calibration Factor under the AnalysisGroup node only.
MeanCalibrationFactorUnits		X				Report the units for the Mean Calibration Factor under the AnalysisGroup node only.
MeanRetentionTime		X				Report the mean retention time in decimal minutes under AnalysisGroup only.
MeanRetentionTimeLimitHigh		X				Report the upper limit for the mean retention time in decimal minutes from the ICAL.
MeanRetentionTimeLimitLow		X				Report the lower limit for the mean retention time in decimal minutes from the ICAL.
MeanRetentionTimeLimitType		X				Report "Method".
MeanRetentionTimeUnits		X				Report "Minutes".
MeanRRF						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
MeanRRFLimitLow						Not required.
MeanRRFLimitType						Not required.
PeakID	X	X	X		X	Report the peak identifier as used by the laboratory to uniquely identify this peak.
PercentDifference			X			Report the calculated Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitHigh			X			Report the upper limit for the Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitLow			X			Report the lower limit for the Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitType			X			Report "Method".
PercentRecovery						Not required.
PercentRecoveryLimitHigh						Not required.
PercentRecoveryLimitLow						Not required.
PercentRecoveryLimitType						Not required.
PercentRSD		X				Report the calculated Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.
PercentRSDLimitHigh		X				Report the upper limit for the Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.
PercentRSDLimitLow						Not required.
PercentRSDLimitType		X				Report "Method".
Resolution	X					Report the percent resolution.
ResolutionLimitLow	X					Report the lower limit for the percent resolution.
ResolutionLimitType	X					Report "Method".
ResolutionUnits	X					Report "Percent".
Response	X	X	X		X	Report the actual Peak Area (or Peak Height) from the raw data.
ResponseLimitHigh						Not required.
ResponseLimitLow						Not required.
ResponseLimitType						Not required.
ResponseUnits	X	X	X		X	Report "Peak_Area" or "Peak_Height".
Result						Not required.
ResultLimitHigh						Not required.
ResultLimitLow						Not required.
ResultLimitType						Not required.
ResultType						Not required.
ResultUnits						Not required.
RetentionTime	X	X	X		X	Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X	X	X		X	Report the upper limit for this Retention Time in decimal minutes.
RetentionTimeLimitLow	X	X	X		X	Report the lower limit for this Retention Time in decimal minutes.
RetentionTimeLimitType	X	X	X		X	Report "Method".
RetentionTimeUnits	X	X	X		X	Report "Minutes".
RRF						Not required.

Table 3

Pesticides Data Element Instructions (Con't)

Node and Data Elements	Applicability IPC	ICAL	CCV	FLO	GPC	Instructions
RRFLimitLow						Not required.
RRFLimitType						Not required.
WeightingFactor						Not required.
PeakComparison						Not required.

Table 4

Aroclors Data Element Instructions

Node and Data Elements	Applicability Sample	MB	CB	IB	MS	MSD	LCS	NCS	Instructions
Header	X		X		X		X	X	
ClientDataPackageID	X		X		X		X	X	Report the Case Number.
ClientDataPackageName	X		X		X		X	X	Report the Contract Number.
ClientDataPackageVersion	X		X		X		X	X	Report "1", then increment with each resubmission.
EDDID	X		X		X		X	X	Report "SEDD".
EDDVersion	X		X		X		X	X	Report "Draft 5.1".
EDDImplementationID	X		X		X		X	X	Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X		X		X		X	X	Report "2" (This is the version of the DTD used).
GeneratingSystemID	X		X		X		X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X		X		X		X	X	Report software version number.
LabDataPackageID	X		X		X		X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X		X		X		X	X	Report "Aroclor".
LabDataPackageVersion	X		X		X		X	X	Report "1", then increment with each resubmission.
LabReportedDate	X		X		X		X	X	Report the date this data was reported to the client.
DateFormat	X		X		X		X	X	Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment									Not required.
SamplePlusMethod	X		X		X		X	X	
Bottles									Not required.
BottleType									Not required.
ClientMethodID	X		X		X		X	X	Report "SOM01.X".
ClientMethodName									Not required.
ClientMethodSource	X		X		X		X	X	Report "USEPA_CLP".
ClientMethodType	X		X		X		X	X	Report "GCECD_External_Standard".
ClientSampleID	X		X		X		X	X	Report the EPA Sample Number.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
CollectedDate	X				X				Report the date and time the sample was collected.
Comment									Not required.
Composite									Not required.
CoolerID									Not required.
CustodyID	X				X				Report the Traffic Report/Chain of Custody Form Number.
EquipmentBatch									Not required.
LabContract	X		X		X		X		Report the Contract Number.
LabID	X		X		X		X	X	Report the Agency-assigned Lab Code.
LabName	X		X		X		X	X	Report the Lab Name.
LabReceiptDate	X				X				Report the date and time the sample was received.
LabReportingBatch	X		X		X		X	X	Links all samples analyzed to this SDG. Report the SDG Number.
LabSampleID	X		X		X		X		Report the Lab Sample ID as assigned by the laboratory.
MatrixID	X		X		X		X		Report "Water", "Soil", or "Sediment".
MatrixName									Not required.
MethodLevel									Not required.
MethodBatch									Not required.
OriginalClientSampleID					X				Report the EPA Sample Number of the original sample from which this sample was derived.
OriginalLabSampleID									Not required.
PercentMoisture	X		X		X		X		For Soil/Sediment samples only, report the percent moisture to at least two significant figures.
PercentSolids									Not required.
pH	X				X				Report the pH as measured by the laboratory upon receipt to +/- 0.1 pH units.
Preservative	X				X				Report any chemical preservative used.
ProjectID	X		X		X		X		Report the Case Number.
ProjectName									Not required.
QCCategory			X		X		X		Report "Blank" for MB, CB and IB; "Spike" for MS; "Spike_Duplicate" for MSD; and "Blank_Spike" for LCS.
QCLinkage			X		X		X	X	Report "LabReportingBatch" for MS and MSD; "PreparationBatch" for MB, CB and LCS; or "AnalysisBatch" for IB and non-client samples.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability						Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
QCType	X		X		X		X	X	Report "Method_Blank" for MB; "Cleanup_Blank" for CB; "Instrument_Blank" for IB; "Matrix_Spike" for MS; "Matrix_Spike_Duplicate" for MSD; "Laboratory_Control_Sample" for LCS; "Field_Sample" for field samples; "Field_Blank" for field, equipment, rinse, trip, or other blanks; "PT_Sample" for Performance Evaluation samples; or "Non_Client_Sample" for non-client samples.
SamplingBatch									Not required.
ServicesID	X				X				Report the Modification Reference Number, if applicable.
ShippingBatch									Not required.
SiteID									Not required.
SiteName									Not required.
StorageBatch									Not required.
Temperature	X				X				Report the temperature as measured by the laboratory upon receipt to +/- 1°C.
TemperatureUnits	X				X				Report "C".
InstrumentQC									Not required.
Analysis	X		X		X		X	X	
AliquotAmount									Not required.
AliquotAmountUnits									Not required.
AnalysisBatch	X		X		X		X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the instrument blank that starts this sequence. For the instrument blank that starts this sequence, report the Lab File ID of the instrument blank itself.
AnalysisBatchEnd	X		X		X		X	X	Links this analysis to the QC immediately following a 12-hour period. Report the Lab File ID of the last CCV standard used to close out the 12-hour period.
AnalysisGroupID									Not required.
AnalysisType	X		X		X		X		Report "Initial", "Dilution-01", "Reanalysis-01" or "Reinjection-01". Then increment as necessary.
Analyst	X		X		X		X		Report Analyst's initials.
AnalyzedAmount									Not required.
AnalyzedAmountUnits									Not required.
AnalyzedDate	X		X		X		X	X	Report the date and time the sample was analyzed.
BottleID									Not required.
ClientAnalysisID	X		X		X		X	X	Report the EPA Sample Number.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability						Instructions
	Sample	MB	CB IB	MS	MSD	LCS NCS	
ClientMethodID	X		X	X	X	X	Report "SOM01.X".
ClientMethodName							Not required.
ClientMethodType	X		X	X	X	X	Report "USEPA_CLP".
Column	X		X	X	X	X	Report the GC Column used.
ColumnInternalDiameter	X		X	X	X	X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X		X	X	X	X	Report "mm".
ColumnLength	X		X	X	X	X	Report the GC Column Length in meters.
ColumnLengthUnits	X		X	X	X	X	Report "m".
Comment							Not required.
ConfirmationAnalysisID	X		X	X			Links an analysis to a confirmation analysis. Report the Lab File ID of the confirmation analysis.
DetectorID							Not required.
DetectorType	X		X	X	X	X	Report "ECD".
DilutionFactor	X		X	X			Report the Dilution Factor used to +/- 0.1.
HeatedPurge							Not required.
InjectionVolume	X		X	X			Report the column specific Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X		X	X			Report "uL".
InstrumentID	X		X	X	X	X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X		X	X	X	X	Report the Lab File ID.
LabFileID	X		X	X	X	X	Report the Lab File ID.
LabMethodID							Not required.
LabMethodName							Not required.
ProcedureID							Not required.
ProcedureName							Not required.
ResultBasis	X		X	X			Report "Dry" for Soil/Sediment samples. Report "Total" or "Filtered" for water samples, as applicable.
RunBatch	X		X	X	X	X	Links this analysis to an initial calibration. Report the Lab File ID of the standard that started the ICAL sequence.
AnalysisGroup							Not required.
Handling	X		X	X			
Analyst							Not required.
BottleID							Not required.
ClientMethodID	X		X	X			Report "SOM01.X".
ClientMethodName							Not required.
ClientMethodSource	X		X	X			Report "USEPA_CLP".
Comment							Not required.
HandledDate	X		X	X			Report the date and time the sample was handled.
HandlingBatch							Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability: Sample	MB	CB	IB	MS	MSD	LCS	NCS	Instructions
HandlingType	X				X				Report "Decanted" if water was decanted from Soil samples, otherwise report "Not_Decanted".
InitialAmount									Not required.
InitialAmountUnits									Not required.
LabMethodID									Not required.
LabMethodName									Not required.
ProcedureID									Not required.
ProcedureName									Not required.
PercentMoisture									Not required.
PercentSolids									Not required.
SampleAmount									Not required.
SampleAmountUnits									Not required.
ReportedResult	X		X		X		X		
AnalysisGroupID									Not required.
AnalyteName	X		X		X		X		Report analytes as they appear in the SOW.
AnalyteNameContext									Not required.
AnalyteType	X		X		X		X		Report "Target" for all target compounds and "Spike" for all target compounds designated as spike compounds for MS/MSD and LCS analysis.
CASRegistryNumber	X		X		X		X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X		X		X		X		Report CAS Number.
Comment									Not required.
DetectionLimit	X		X		X		X		For target compounds, report the Method Detection Limit as determined by the lab.
DetectionLimitType	X		X		X		X		Report "MDL".
DetectionLimitUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ExpectedResult					X		X		Report the theoretical final calculated concentration for the spiked analytes.
ExpectedResultUnits					X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
LabAnalysisID	X		X		X		X		Report the Lab File ID of the analysis for which this reported result was derived from.
LabAnalyteID									Not required.
LabQualifiers	X		X		X		X		Report up to five flags as specified in the SOW (U, J, P, C, B, E, D, S, X, Y, Z).
PeakID									Not required.
PercentDifference	X				X		X		Report the percent difference between the reported result and the confirmation result to +/- 1% (excluding IB).
PercentDifferenceLimitHigh	X				X		X		Report the upper limit for the percent difference (excluding IB).

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType	X				X		X		Report "Method" (excluding IB).
PercentRecovery									Not required.
PercentRecoveryLimitHigh									Not required.
PercentRecoveryLimitLow									Not required.
PercentRecoveryLimitType									Not required.
QuantitationLimit	X		X		X		X		For target compounds, report the adjusted CRQL.
QuantitationLimitType	X		X		X		X		Report "CRQL".
QuantitationLimitUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
ReportingLimit	X		X		X		X		For target compounds, report the adjusted CRQL.
ReportingLimitType	X		X		X		X		Report "CRQL".
ReportingLimitUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
Result	X		X		X		X		Report the final calculated concentration to at least two significant figures. Leave blank if analyte is not detected.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X		X		X		X		Report "=" for all reported Result values.
ResultUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
RetentionTime									Not required.
RetentionTimeUnits									Not required.
RPD									Not required.
RPDLimitHigh									Not required.
RPDLimitType									Not required.
PreparationPlusCleanup	X		X		X		X		
AliquotAmount	X		X		X		X		Report the sample amount used for this analysis to at least three significant figures.
AliquotAmountUnits	X		X		X		X		Report "g" for Soil/Sediment and "mL" for Water.
Analyst									Not required.
BottleID									Not required.
CleanedUpDate	X		X		X		X		Report the date and time the sample was cleaned up.
CleanupBatch	X		X		X		X		Links all samples that were cleaned up together. Report the Lab File ID of the associated blank or other unique identifier.
CleanupType	X		X		X		X		Report "GPC", "Florisil", "Sulfuric_Acid", "Silica_Gel", "Alumina", or "Acid_Base_Partition" as applicable.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
ClientMethodID	X		X		X		X		Report "SOM01.X".
ClientMethodName									Not required.
ClientMethodSource	X		X		X		X		Report "USEPA_CLP".
Comment									Not required.
FinalAmount	X		X		X		X		Report the Final Amount of material produced upon completion of this Prep or Cleanup.
FinalAmountUnits	X		X		X		X		Report the Units for this Final Amount.
InitialAmount	X		X		X		X		Report the initial amount of extracted sample used for this cleanup method.
InitialAmountUnits	X		X		X		X		Report the Units for this Initial Amount.
LabMethodID									Not required.
LabMethodName									Not required.
LotNumber	X		X		X		X		Report the manufacturer's lot number for the Florisil cartridges used.
PreparationBatch	X		X		X		X		Links all samples that were extracted together. Report the Lab File ID of the associated Method Blank.
PreparationPlusCleanupType	X		X		X		X		Report "Preparation" or "Cleanup" as applicable.
PreparationType	X		X		X		X		Report "Sonication", "Soxhlet", or "Pressurized_Fluid" for Soil/Sediment. Report "Sep_Funnel", "Liq_Liq", or "Liq_Membrane" for Water.
PreparedDate	X		X		X		X		Report the date and time the sample was extracted.
ProcedureID									Not required.
ProcedureName									Not required.
Analyte	X		X		X		X		
AmountAdded	X		X		X		X		Report the volume of the surrogate standard or spiking solution added to the sample.
AmountAddedUnits	X		X		X		X		Report the volume units for the Amount Added.
AnalyteName	X		X		X		X		Report analytes as they appear in the SOW.
AnalyteNameContext									Not required.
AnalyteType	X		X		X		X		Report "Target for all target compounds; "Surrogate" for surrogate compounds; or "Spike" for target compounds designated as spike compounds for MS/MSD or LCS analysis.
CASRegistryNumber	X		X		X		X		Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X		X		X		X		Report CAS Number.
Comment									Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
ExpectedResult	X		X		X		X		Report the theoretical final calculated concentration for the surrogates. For LCS, also report the theoretical final calculated concentration for the LCS spike compounds.
ExpectedResultUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
IntermediateResult	X		X		X		X		Report the on-column amount in nanograms from the raw data. Leave blank if not detected.
IntermediateResultUnits	X		X		X		X		Report "ng".
LabAnalyteID									Not required.
LabQualifiers	X		X		X		X		Report up to five flags as specified in the SOW (U, J, P, C, B, E, D, S, X, Y, Z).
LotNumber	X		X		X		X		Report the vendor/manufacturer assigned lot number for this standard.
PeakID									Not required.
PercentBreakdown									Not required.
PercentBreakdownLimitHigh									Not required.
PercentBreakdownLimitType									Not required.
PercentDifference									Not required.
PercentDifferenceLimitHigh									Not required.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType									Not required.
PercentMatch									Not required.
PercentRecovery	X		X		X		X		Report the final calculated Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitHigh	X		X		X		X		Report the upper limit for the Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitLow	X		X		X		X		Report the lower limit for the Percent Recovery of the spikes and surrogates to +/- 1%.
PercentRecoveryLimitType	X		X		X		X		Report "Method".
Result	X		X		X		X		Report the calculated concentration to at least two significant figures. Leave blank if compound is not detected.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType	X		X		X		X		Report "=" for all reported Result values.
ResultUnits	X		X		X		X		Report "ug/kg" for Soil/Sediment and "ug/L" for Water.
RPD					X				Report the RPD to +/- 1%.
RPDLimitHigh					X				Report the upper limit for the RPD to +/- 1%.
RPDLimitType					X				Report "Method".
StandardConcentration	X		X		X		X		Report the concentration of the surrogate standard or spiking solution used.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
StandardConcentrationUnits	X		X		X		X		Report the units for the Standard Concentration.
StandardID	X		X		X		X		Report the lab assigned identifier for this standard.
StandardSource	X		X		X		X		Report the vendor/manufacturer for this standard.
TailingFactor									Not required.
TailingFactorLimitHigh									Not required.
TailingFactorLimitType									Not required.
Peak	X		X		X		X		
CalibrationFactor									Not required.
CalibrationFactorUnits									Not required.
CalibrationType									Not required.
Coeffa0									Not required.
Coeffa1									Not required.
Coeffa2									Not required.
Coeffa3									Not required.
CoeffOfDetermination									Not required.
CoeffOfDeterminationLimitLow									Not required.
CoeffOfDeterminationLimitType									Not required.
Comment									Not required.
CorrelationCoeff									Not required.
CorrelationCoeffLimitLow									Not required.
CorrelationCoeffLimitType									Not required.
IntermediateResult	X		X		X		X		Report the on-column amount in nanograms from the raw data for this peak. Leave blank if compound is not detected.
IntermediateResultUnits	X		X		X		X		Report "ng".
LabQualifiers									Not required.
ManualIntegration	X		X		X		X		Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor									Not required.
MeanCalibrationFactorUnits									Not required.
MeanRetentionTime									Not required.
MeanRetentionTimeLimitHigh									Not required.
MeanRetentionTimeLimitLow									Not required.
MeanRetentionTimeLimitType									Not required.
MeanRetentionTimeUnits									Not required.
MeanRRF									Not required.
MeanRRFLimitLow									Not required.
MeanRRFLimitType									Not required.
PeakID	X		X		X		X		Report the peak identifier as used by the laboratory to uniquely identify this peak.
PercentDifference									Not required.
PercentDifferenceLimitHigh									Not required.
PercentDifferenceLimitLow									Not required.
PercentDifferenceLimitType									Not required.
PercentRecovery									Not required.
PercentRecoveryLimitHigh									Not required.
PercentRecoveryLimitLow									Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability							Instructions
	Sample	MB	CB	IB	MS	MSD	LCS	NCS	
PercentRecoveryLimitType									Not required.
PercentRSD									Not required.
PercentRSDLimitHigh									Not required.
PercentRSDLimitLow									Not required.
PercentRSDLimitType									Not required.
Resolution									Not required.
ResolutionLimitLow									Not required.
ResolutionLimitType									Not required.
ResolutionUnits									Not required.
Response	X		X		X		X		Report the actual Peak Area (or Peak Height) from the raw data.
ResponseLimitHigh									Not required.
ResponseLimitLow									Not required.
ResponseLimitType									Not required.
ResponseUnits	X		X		X		X		Report "Peak_Area" or "Peak_Height".
Result									Not required.
ResultLimitHigh									Not required.
ResultLimitLow									Not required.
ResultLimitType									Not required.
ResultType									Not required.
ResultUnits									Not required.
RetentionTime	X		X		X		X		Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X		X		X		X		Report the upper limit for this Retention Time in decimal minutes.
RetentionTimeLimitLow	X		X		X		X		Report the lower limit for this Retention Time in decimal minutes.
RetentionTimeLimitType	X		X		X		X		Report "Method".
RetentionTimeUnits	X		X		X		X		Report "Minutes".
RRF									Not required.
RRFLimitLow									Not required.
RRFLimitType									Not required.
WeightingFactor									Not required.
PeakComparison									Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability ICAL	CCV	Instructions
Header	X	X	
ClientDataPackageID	X	X	Report the Case Number.
ClientDataPackageName	X	X	Report the Contract Number.
ClientDataPackageVersion	X	X	Report "1", then increment with each resubmission.
EDDID	X	X	Report "SEDD".
EDDVersion	X	X	Report "Draft 5.1".
EDDImplementationID	X	X	Report "ORGANICGENERAL_3" (This is the DTD used).
EDDImplementationVersion	X	X	Report "2" (This is the version of the DTD used).
GeneratingSystemID	X	X	Report name of generating software or vendor.
GeneratingSystemVersion	X	X	Report software version number.
LabDataPackageID	X	X	Report the Sample Delivery Group (SDG).
LabDataPackageName	X	X	Report "Aroclor".
LabDataPackageVersion	X	X	Report "1", then increment with each resubmission.
LabReportedDate	X	X	Report the date this data was reported to the client.
DateFormat	X	X	Report "MMDDYYYY HH:mm:SS". All dates and times reported in the EDD must follow this format. If any part of the time is unknown, report "00" for the unknown hours, minutes, and seconds.
Comment			Not required.
SamplePlusMethod			Not required.
InstrumentQC	X	X	
ClientInstrumentQCType			Not required.
ClientMethodID	X	X	Report "SOM01.X".
ClientMethodName			Not required.
ClientMethodSource	X	X	Report "USEPA_CLP".
Comment			Not required.
LabInstrumentQCID	X	X	Report the EPA Sample Number. For ICAL, report the EPA Sample Number of the first standard.
LabID	X	X	Report the Agency-assigned Lab Code.
LabName	X	X	Report the Lab Name.
QCLinkage	X	X	Report "AnalysisBatch" for CCV and "RunBatch" for ICAL.
QCType	X	X	Report "Initial_Calibration" or "Continuing_Calibration_Verification".
Analysis	X	X	
AliquotAmount			Not required.
AliquotAmountUnits			Not required.
AnalysisBatch	X	X	Links this analysis to the beginning of a 12-hour period. Report the Lab File ID of the instrument blank that starts this sequence.
AnalysisBatchEnd		X	Links this analysis to the QC immediately following the end of a 12-hour period. Report the Lab File ID of the last CCV used to close out the 12-hour period. For the last CCV, report the Lab File ID of the CCV itself.
AnalysisGroupID	X		Links a group of analyses together that are used for multipoint initial calibration. Report the Lab File ID of the standard that starts this sequence.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability ICAL	CCV	Instructions
AnalysisType	X	X	For ICAL/CCV report the calibration level used (e.g., "CF-10").
Analyst	X	X	Report Analyst's initials.
AnalyzedAmount			Not required.
AnalyzedAmountUnits			Not required.
AnalyzedDate	X	X	Report the date and time the sample was analyzed.
BottleID			Not required.
ClientAnalysisID	X	X	Report the EPA Sample Number.
ClientMethodID	X	X	Report "SOM01.X".
ClientMethodName			Not required.
ClientMethodSource	X	X	Report "USEPA_CLP".
Column	X	X	Report the GC Column used.
ColumnInternalDiameter	X	X	Report the GC Column Internal Diameter in millimeters.
ColumnInternalDiameterUnits	X	X	Report "mm".
ColumnLength	X	X	Report the GC Column Length in meters.
ColumnLengthUnits	X	X	Report "m".
Comment			Not required.
ConfirmationAnalysisID			Not required.
DetectorID			Not required.
DetectorType	X	X	Report "ECD".
DilutionFactor			Not required.
HeatedPurge			Not required.
InjectionVolume	X	X	Report the column specific Injection Volume used in microliters to at least two significant figures.
InjectionVolumeUnits	X	X	Report "uL".
InstrumentID	X	X	Report the lab identifier for the instrument used for this analysis.
LabAnalysisID	X	X	Report the Lab File ID.
LabFileID	X	X	Report the Lab File ID.
LabMethodID			Not required.
LabMethodName			Not required.
ProcedureID			Not required.
ProcedureName			Not required.
ResultBasis			Not required.
RunBatch	X	X	Links this analysis to an initial calibration. Report the Lab File ID of the standard that started the ICAL sequence.
AnalysisGroup	X		
AnalysisGroupID	X		Links a group of analyses together that are used for multipoint initial calibration. Report the Lab File ID of the standard that starts this sequence.
AnalysisType	X		Report "Initial_Calibration".
Comment			Not required.
Handling			Not required.
ReportedResult			Not required.
PreparationPlusCleanup			Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability ICAL	CCV	Instructions
Analyte	X	X	
AmountAdded	X	X	Report the volume of the standard used.
AmountAddedUnits	X	X	Report the volume units for the amount added.
AnalyteName	X	X	Report analytes as they appear in the SOW.
AnalyteNameContext			Not required.
AnalyteType	X	X	Report "Target" for target compounds or "Surrogate" for surrogates.
CASRegistryNumber	X	X	Report CAS Numbers as they appear in the SOW.
ClientAnalyteID	X	X	Report CAS Number.
Comment			Not required.
ExpectedResult	X	X	Report the final amount added in nanograms.
ExpectedResultUnits	X	X	Report "ng".
IntermediateResult	X	X	Report the on-column amount in nanograms from the raw data.
IntermediateResultUnits	X	X	Report "ng".
LabAnalyteID			Not required.
LabQualifiers			Not required.
LotNumber	X	X	Report the vendor/manufacturer assigned lot number for this standard.
PeakID			Not required.
PercentBreakdown			Not required.
PercentBreakdownLimitHigh			Not required.
PercentBreakdownLimitType			Not required.
PercentDifference			Not required.
PercentDifferenceLimitHigh			Not required.
PercentDifferenceLimitLow			Not required.
PercentDifferenceLimitType			Not required.
PercentMatch			Not required.
PercentRecovery			Not required.
PercentRecoveryLimitHigh			Not required.
PercentRecoveryLimitLow			Not required.
PercentRecoveryLimitType			Not required.
Result			Not required.
ResultLimitHigh			Not required.
ResultLimitLow			Not required.
ResultLimitType			Not required.
ResultType			Not required.
ResultUnits			Not required.
RPD			Not required.
RPDLimitHigh			Not required.
RPDLimitType			Not required.
StandardConcentration	X	X	Report the concentration of the standard used.
StandardConcentrationUnits	X	X	Report the units for the Standard Concentration.
StandardID	X	X	Report the lab assigned identifier for this standard.
StandardSource	X	X	Report the vendor/manufacturer for this standard.
TailingFactor			Not required.
TailingFactorLimitHigh			Not required.
TailingFactorLimitType			Not required.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability ICAL	CCV	Instructions
Peak	X	X	
CalibrationFactor	X	X	Report the calculated Calibration Factor. Leave blank if this compound is not to be included in the initial calibration curve.
CalibrationFactorUnits	X	X	Report the units for the Calibration Factor.
CalibrationType	X		Report "Average_Calibration_Factor".
Coeffa0			Not required.
Coeffa1			Not required.
Coeffa2			Not required.
Coeffa3			Not required.
CoeffOfDetermination			Not required.
CoeffOfDeterminationLimitLow			Not required.
CoeffOfDeterminationLimitType			Not required.
Comment			Not required.
CorrelationCoeff			Not required.
CorrelationCoeffLimitLow			Not required.
CorrelationCoeffLimitType			Not required.
IntermediateResult	X	X	Report the on-column amount in nanograms from the raw data for this peak. Leave blank if compound is not detected.
IntermediateResultUnits	X	X	Report "ng".
LabQualifiers			Not required.
ManualIntegration	X	X	Report "Yes" if this peak was manually integrated, otherwise report "No".
MeanCalibrationFactor	X		Report the calculated Mean Calibration Factor under the AnalysisGroup node only.
MeanCalibrationFactorUnits	X		Report the units for the Mean Calibration Factor under the AnalysisGroup node only.
MeanRetentionTime	X		Report the mean retention time in decimal minutes under AnalysisGroup only.
MeanRetentionTimeLimitHigh	X		Report the upper limit for the mean retention time in decimal minutes from the ICAL.
MeanRetentionTimeLimitLow	X		Report the lower limit for the mean retention time in decimal minutes from the ICAL.
MeanRetentionTimeLimitType	X		Report "Method".
MeanRetentionTimeUnits	X		Report "Minutes".
MeanRRF			Not required.
MeanRRFLimitLow			Not required.
MeanRRFLimitType			Not required.
PeakID	X	X	Report the peak identifier as used by the laboratory to uniquely identify this peak.
PercentDifference		X	Report the calculated Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitHigh		X	Report the upper limit for the Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitLow		X	Report the lower limit for the Percent Difference for this peak to +/- 0.1%.
PercentDifferenceLimitType		X	Report "Method".
PercentRecovery			Not required.
PercentRecoveryLimitHigh			Not required.
PercentRecoveryLimitLow			Not required.
PercentRecoveryLimitType			Not required.
PercentRSD	X		Report the calculated Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.

Table 4

Aroclors Data Element Instructions (Con't)

Node and Data Elements	Applicability ICAL	Applicability CCV	Instructions
PercentRSDLimitHigh	X		Report the calculated Percent Relative Standard Deviation to +/- 0.1% under the AnalysisGroup node only.
PercentRSDLimitLow			Not required.
PercentRSDLimitType	X		Report "Method".
Resolution			Not required.
ResolutionLimitLow			Not required.
ResolutionLimitType			Not required.
ResolutionUnits			Not required.
Response	X	X	Report the actual Peak Area (or Peak Height) from the raw data.
ResponseLimitHigh			Not required.
ResponseLimitLow			Not required.
ResponseLimitType			Not required.
ResponseUnits	X	X	Report "Peak_Area" or "Peak_Height".
Result			Not required.
ResultLimitHigh			Not required.
ResultLimitLow			Not required.
ResultLimitType			Not required.
ResultType			Not required.
ResultUnits			Not required.
RetentionTime	X	X	Report the actual Retention Time in decimal minutes from the raw data for this peak.
RetentionTimeLimitHigh	X	X	Report the upper limit for this Retention Time in decimal minutes.
RetentionTimeLimitLow	X	X	Report the lower limit for this Retention Time in decimal minutes.
RetentionTimeLimitType	X	X	Report "Method".
RetentionTimeUnits	X	X	Report "Minutes".
RRF			Not required.
RRFLimitLow			Not required.
RRFLimitType			Not required.
WeightingFactor			Not required.
PeakComparison			Not required.

Table 5

Abbreviations Used in the Instructions

Abbreviation	Definition
%D	Percent Difference
%RSD	Percent Relative Standard Deviation
C	Celsius
CB	Cleanup Blank
CCV	Continuing Calibration Verification
CRQL	Contract-Required Quantitation Limit
DMC	Deuterated Monitoring Compounds
DTD	Document Type Definition
EDD	Electronic Data Deliverable
FLO	Florisil Cartridge Check
GC	Gas Chromatography
GPC	Gel Permeation Chromatography Calibration Verification
IB	Instrument Blank
ICAL	Initial Calibration
ID	Identifier
IPC	Instrument Performance Check
LCS	Laboratory Control Sample
MB	Method Blank
MS	Matrix Spike
MSD	Matrix Spike Duplicate
NCS	Non-Client Sample
PIBLK	Pesticides Instrument Blank
PEM	Performance Evaluation Mixture
RESC	Resolution Check Mixture
RRF	Relative Response Factor
SB	Storage Blank
TIC	Tentatively Identified Compounds

APPENDIX A

USEPA REGISTRY NAMES, SYNONYMS, AND CAS REGISTRY NUMBERS

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Appendix A - USEPA Registry Names, Synonyms, and CAS Registry Numbers

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1.0 VOLATILE COMPOUNDS

Systematic Name	EPA Registry Name	Synonyms	CAS #
Methane, dichlorodifluoro-	CFC-12	Dichlorodifluoromethane	75-71-8
Methane, chloro-		Methyl chloride	74-87-3
Ethene, chloro-		Vinyl chloride	75-01-4
Methane, bromo-		Methyl bromide	74-83-9
Ethane, chloro-		Ethyl chloride	75-00-3
Methane, trichlorofluoro-	CFC-11	Fluorotrichloromethane	75-69-4
Ethene, 1,1-dichloro-		Vinylidene chloride	75-35-4
Ethane, 1,1,2-trichloro-1,2,2-trifluoro-	CFC-113	Freon 113	76-13-1
2-Propanone		Acetone	67-64-1
Carbon disulfide	Carbon disulfide	Dithiocarbonic anhydride	75-15-0
Acetic acid, methyl ester		Methyl acetate	79-20-9
Methane, dichloro		Methylene chloride	75-09-2
Ethene, 1,2-dichloro-, (1E)-		trans-1,2-Dichloroethylene	156-60-5
Propane, 2-methoxy-2-methyl-		Methyl tert-butyl ether	1634-04-4
Ethane, 1,1-dichloro-		Ethylidene dichloride	75-34-3
2-Butanone		Methyl ethyl ketone	78-93-3
Methane, trichloro-		Chloroform	67-66-3
Ethane, 1,1,1-trichloro-		1,1,1-Trichloroethane	71-55-6
Cyclohexane	Cyclohexane	Hexahydrobenzene	110-82-7
Methane, tetrachloro-		Carbon tetrachloride	56-23-5
Benzene	Benzene	Benzol	71-43-2
Ethane, 1,2-dichloro-		Ethylene dichloride	107-06-2
Ethene, trichloro-		Trichloroethylene	79-01-6
Cyclohexane, methyl-		Methylcyclohexane	108-87-2
Propane, 1,2-dichloro-		1,2-Dichloropropane	78-87-5
Methane, bromodichloro-		Bromodichloromethane	75-27-4
1-Propene, 1,3-dichloro-, (Z)-		cis-1,3-Dichloropropene	10061-01-5
2-Pentanone, 4-methyl-		4-Methyl-2-pentanone	108-10-1
Benzene, methyl-		Toluene	108-88-3
1-Propene, 1,3-dichloro-, (1E)-		trans-1,3-Dichloropropene	10061-02-6
Ethane, 1,1,2-trichloro-	1,1,2-Trichloroethane	1,1,2-TCA	79-00-5
Ethene, tetrachloro-		Tetrachloroethene	127-18-4
2-Hexanone		Methyl n-butyl ketone (MNBK)	591-78-6

Systematic Name	EPA Registry Name	Synonyms	CAS #
Methane, dibromochloro-		Dibromochloromethane	124-48-1
Ethane, 1,2-dibromo-		1,2-Dibromoethane	106-93-4
Benzene, chloro	Chlorobenzene	Phenyl chloride	108-90-7
Benzene, ethyl-	Ethylbenzene	Phenylethane	100-41-4
Benzene, dimethyl-		Xylenes, total	1330-20-7
Benzene, ethenyl-		Styrene	100-42-5
Methane, tribromo-	Tribromomethane	Bromoform	75-25-2
Benzene, (1-methylethyl)-		Cumene	98-82-8
Ethane, 1,1,2,2-tetrachloro-	1,1,2,2-Tetrachloroethane	1,1,2,2-PCA	79-34-5
Benzene, 1,3-dichloro-		m-Dichlorobenzene	541-73-1
Benzene, 1,4-dichloro-		p-Dichlorobenzene	106-46-7
Benzene, 1,2-dichloro-		o-Dichlorobenzene	95-50-1
Propane, 1,2-dibromo-3-chloro-		1,2-Dibromo-3-chloropropane	96-12-8
Benzene, 1,2,4-trichloro-	1,2,4-Trichlorobenzene	Pseudocumene	120-82-1
Methane, bromochloro-	Halon 1011	Chlorobromomethane	74-97-5
Benzene, 1,2,3-trichloro-		1,2,3-Trichlorobenzene	87-61-6

2.0 SEMIVOLATILE COMPOUNDS

Systematic Name	EPA Registry Name	Synonym	CAS #
Benzaldehyde		Benzoic aldehyde	100-52-7
Phenol	Phenol	Hydroxybenzene	108-95-2
Ethane, 1,1'-oxybis[2-chloro-		Bis(2-chloroethyl)ether	111-44-4
Phenol, 2-chloro-		o-Chlorophenol	95-57-8
Phenol, 2-methyl-		o-Cresol	95-48-7
Propane, 2,2'-oxybis[1-chloro-	Bis(2-chloro-1-methylethyl)ether	2,2'-Dichloroisopropyl ether	108-60-1
Ethanone, 1-phenyl-	Acetophenone	Acetylbenzene	98-86-2
Phenol, 4-methyl-		p-Cresol	106-44-5
1-Propanamine, N-nitroso-N-propyl-		N-Nitrosodi-n-propylamine	621-64-7
Ethane, hexachloro-	Hexachloroethane	Perchloroethane	67-72-1
Benzene, nitro-	Nitrobenzene	Nitrobenzol	98-95-3
2-Cyclohexen-1-one, 3,5,5-trimethyl-		Isophorone	78-59-1
Phenol, 2-nitro-		o-Nitrophenol	88-75-5
Phenol, 2,4-dimethyl-		Xylenol	105-67-9
Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-		Bis(2-chloroethoxy)methane	111-91-1
Phenol, 2,4-dichloro-	2,4-Dichlorophenol	o,p-Dichlorophenol	120-83-2
Naphthalene	Naphthalene	Naphthalin	91-20-3
Benzenamine, 4-chloro-		4-Chloroaniline	106-47-8
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-		Hexachlorobutadiene	87-68-3
2H-Azepin-2-one, hexahydro-		Caprolactam	105-60-2
Phenol, 4-chloro-3-methyl-		p-Chloro-m-cresol	59-50-7
Naphthalene, 2-methyl-		2-Methylnaphthalene	91-57-6
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-		Hexachlorocyclopentadiene	77-47-4
Phenol, 2,4,6-trichloro-	2,4,6-Trichlorophenol	Dowicide 2S	88-06-2
Phenol, 2,4,5-trichloro-	2,4,5-Trichlorophenol	Collunosol	95-95-4
1,1'-Biphenyl		Biphenyl	92-52-4
Naphthalene, 2-chloro-		beta-Chloronaphthalene	91-58-7
Benzenamine, 2-nitro-		2-Nitroaniline	88-74-4
1,2-Benzenedicarboxylic acid, dimethyl ester	Dimethyl phthalate	Dimethylphthalate	131-11-3

Systematic Name	EPA Registry Name	Synonym	CAS #
Benzene, 2-methyl-1,3-dinitro-		2,6-Dinitrotoluene	606-20-2
Acenaphthylene			208-96-8
Benzenamine, 3-nitro-		3-Nitroaniline	99-09-2
Acenaphthylene, 1,2-dihydro-		Acenaphthene	83-32-9
Phenol, 2,4-dinitro-	2,4-Dinitrophenol	Aldifen	51-28-5
Phenol, 4-nitro-		p-Nitrophenol	100-02-7
Dibenzofuran	Dibenzofuran		132-64-9
Benzene, 1-methyl-2,4-dinitro-	2,4-Dinitrotoluene	Toluene, 2,4-dinitro-	121-14-2
1,2-Benzenedicarboxylic acid, diethyl ester	Diethyl phthalate	Phthalic acid, diethyl ester	84-66-2
9H-Fluorene		Fluorene	86-73-7
Benzene, 1-chloro-4-phenoxy-		4-Chlorophenyl phenyl ether	7005-72-3
Benzenamine, 4-nitro-		4-Nitroaniline	100-01-6
Phenol, 2-methyl-4,6-dinitro-		4,6-Dinitro-2-methylphenol	534-52-1
Benzenamine, N-nitroso-N-phenyl-		N-Nitrosodiphenylamine	86-30-6
Benzene, 1,2,4,5-tetrachloro-		1,2,4,5-Tetrachlorobenzene	95-94-3
Benzene, 1-bromo-4-phenoxy-		4-Bromophenyl phenyl ether	101-55-3
Benzene, hexachloro-	Hexachlorobenzene	Amatin	118-74-1
1,3,5-Triazine-2,4-diamine, 6-chloro-N-ethyl-N'-(1-methylethyl)-	Atrazine	Fenatrol	1912-24-9
Phenol, pentachloro-	Pentachlorophenol	PCP	87-86-5
Phenanthrene	Phenanthrene		85-01-8
Anthracene	Anthracene	Paranaphthalene	120-12-7
9H-Carbazole		Carbazole	86-74-8
1,2-Benzenedicarboxylic acid, dibutyl ester	Dibutyl phthalate	Di-N-butyl phthalate	84-74-2
Fluoranthene		Benzo[j,k]fluorene	206-44-0
Pyrene		Benzo[d,e,f]phenanthrene	129-00-0
1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester	Butyl benzyl phthalate	Phthalic acid, benzyl butyl ester	85-68-7
[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-		3,3'-Dichlorobenzidine	91-94-1
Benz[a]anthracene		Benzo[a]anthracene	56-55-3
Chrysene		Benzo[a]phenanthrene	218-01-9

Systematic Name	EPA Registry Name	Synonym	CAS #
1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester	Di(2-ethylhexyl) phthalate	Bis(2-ethylhexyl)phthalate	117-81-7
1,2-Benzenedicarboxylic acid, dioctyl ester	Di-n-octyl phthalate	N-Dioctyl phthalate	117-84-0
Benz[e]acephenanthrylene		Benzo[b]fluoranthene	205-99-2
Benzo[k]fluoranthene		11,12-Benzofluoranthene	207-08-9
Benzo[a]pyrene		3,4-Benzopyrene	50-32-8
Indeno[1,2,3-cd]pyrene		1,10-(1,2-Phenylene)pyrene	193-39-5
Dibenz[a,h]anthracene		1,2,5,6-Dibenzanthracene	53-70-3
Benzo[g,h,i]perylene		1,12-Benzoperylene	191-24-2

3.0 PESTICIDE COMPOUNDS

Systematic Name	Synonym	CAS #
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.beta.,6.beta.)-	.alpha.-BHC	319-84-6
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.beta.,3.alpha.,4.beta.,5.alpha.,6.beta.)-	.beta.-BHC	319-85-7
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.alpha.,4.beta.,5.alpha.,6.beta.)-	.delta.-BHC	319-86-8
Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1.alpha.,2.alpha.,3.beta.,4.alpha.,5.alpha.,6.beta.)-	.gamma.-BHC Lindane	58-89-9
4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-	Heptachlor	76-44-8
1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1.alpha.,4.alpha.,4a.beta.,5.alpha.,8.alpha.,8a.beta.)-	Aldrin	309-00-2
2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a-hexahydro-, (1aR,1bS,2R,5S,5aR,6S,6aR)-rel-	Heptachlor epoxide	1024-57-3
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.beta.,6.alpha.,9.alpha.,9a.beta.)-	Endosulfan I	959-98-8
2,7:3,6-Dimethanonaphth(2,3-b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a.alpha.,2.beta.,2a.alpha.,3.beta.,6.beta.,6a.alpha.,7.beta.,7a.alpha.)-	Dieldrin	60-57-1
Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-	4,4'-DDE	72-55-9
2,7:3,6-Dimethanonaphth(2,3-b)oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a.alpha.,2.beta.,2a.beta.,3.alpha.,6.alpha.,6a.beta.,7.beta.,7a.alpha.)-	Endrin	72-20-8
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide, (3.alpha.,5a.alpha.,6.beta.,9.beta.,9a.alpha.)-	Endosulfan II	33213-65-9
Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-	4,4'-DDD	72-54-8
6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3,3-dioxide	Endosulfan sulfate	1031-07-8
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-	4,4'-DDT	50-29-3
Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-	Methoxychlor	72-43-5

Systematic Name	Synonym	CAS #
2,5,7-Metheno-3H-cyclopenta[a]pentalen-3-one, 3b,4,5,6,6,6a-hexachlorodecahydro-, (2.alpha.,3a.beta., 3b.beta., 4.beta., 5.beta.,6a.beta., 7.alpha., 7a.beta., 8R*)	Endrin ketone	53494-70-5
1,2,4-Methenocyclopenta[cd]pentalene-5-carboxaldehyde, 2,2a,3,3,4,7-hexachlorodecahydro-, (1.alpha.,2.beta.,2a.beta.,4.beta.,4a.beta.,5.beta.,6a.beta.,6b.beta.,7R*)-	Endrin aldehyde	7421-93-4
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-, (1.alpha.,2.alpha.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)	alpha-Chlordane	5103-71-9
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-, (1.alpha.,2.beta.,3a.alpha.,4.beta.,7.beta.,7a.alpha.)-	trans-Chlordane	5103-74-2
Toxaphene	Chlorinated camphene	8001-35-2

4.0 AROCLOR COMPOUNDS

Systematic Name	Synonym	CAS #
Aroclor 1016	PCB-1016	12674-11-2
Aroclor 1221	PCB-1221	11104-28-2
Aroclor 1232	PCB-1232	11141-16-5
Aroclor 1242	PCB-1242	53469-21-9
Aroclor 1248	PCB-1248	12672-29-6
Aroclor 1254	PCB-1254	11097-69-1
Aroclor 1260	PCB-1260	11096-82-5
Aroclor 1262	PCB-1262	37324-23-5
Aroclor 1268	PCB-1268	11100-14-4